A PLANNING-PROGRAMMING-BUDGETING SYSTEM (PPBS) MODEL FOR A COLLEGE WITHIN A UNIVERSITY DECISION-MAKING ENVIRONMENT

By

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Dedicated to Carol

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Abstract of Dissertation Presented to the Graduate Council of the University of Florida in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy

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The demands being placed on public universities for their educational services are increasing in size and complexity. Because the pressures on public resources for a wide range of needs in addition to higher education are mounting rapidly, public universities are being called upon to explain and justify what they are accomplishing with the public investment in higher education. This public concern has highlighted the limitations of the traditional resource allocation process and has revealed the need for a more effective approach. One tool which shows the promise of meeting this need is the Planning-Programming-Budgeting System (PPBS).

This dissertation is concerned with the PPBS approach in a public university. PPBS is viewed as a design for decision making. Its nature, problems, and implementational issues are presented. Special attention is paid to the role of analysis, particularly in program evaluation. How a PPB

System might operate in a public university is explained. A PPBS model together with its major instruments is developed for a college. The implementation and operation of the model are discussed. The model is discussed with respect to the College of Business Administration at the University of Florida.

The PPBS model presents a college of business administration as an organization which develops administrators and teachers of administration, creates knowledge concerning administration, and provides special services to the community. The overall view is multi-dimensional. However, the primary orientation of the model is goal and output, in contrast to the input and organization orientation of the traditional budgeting approach.

Since the State of Florida is currently instituting a PPB System in its executive departments and agencies, including the State University System, a comparison is made of the Florida PPB System and the proposed PPBS model.

A number of general conclusions regarding PPBS and specific conclusions regarding the proposed model are drawn. Several areas for further research are suggested, particularly the area of program evaluation.

CHAPTER I

THE PROBLEM AND THE TREATMENT

Introduction

Institutions of higher learning are currently being confronted with a formidable challenge to expand their educational services. Student enrollments in higher education are steadily increasing. Research activities and extension and public service endeavors are growing. Costs and physical plant requirements are continuing to rise. These factors are exerting increasing pressure on administrators in institutions of higher education (Pfeiffer, 1968, pp. 7-9). Operating under the constraint of limited financial resources, university and college administrators are encountering growing demands to channel more funds into teaching salaries, research efforts, graduate programs, and a wide range of other essential educational services.

It does not appear that these pressures will subside in the foreseeable future but rather will increase in intensity. It has become apparent to many administrators in higher education that the so-called traditional methods of financial management can no longer effectively cope with these pressures. University administrators have, therefore, been searching for new methods with which to plan effectively, operate, and evaluate their educational programs and services. A growing

number of these administrators have turned to the systems approach as a means of effectively handling the increasingly complex burden of managing an academic enterprise and its subordinate organizations.

The systems approach may yield the university administrator an objective basis for decision making. This approach calls for the explicit delineation of the objectives of an enterprise, the determination and evaluation of alternative ways to accomplish these objectives, and the evaluation of performance toward them. Insofar as decision making deals essentially with an economic problem, namely the economical allocation and utilization of limited resources, the systems approach may provide powerful assistance to the university decision maker.

One development in the systems approach which may offer potential for aiding in the administration of an institution of higher learning is the Planning-Programming-Budgeting System (PPBS). PPBS is a planning and management process which can present an objective-oriented focus for the activities or programs of a university. PPBS can also create an environment in which the basis of competition among subordinate organizational units in an academic enterprise is the efficiency and effectiveness of subordinate unit contributions to enterprise objectives. The structure in PPBS permits the analysis of activities without direct concern with organizational roles. There is a multi-year time horizon for planning and budgeting in PPBS. This allows the decision

maker to gain an improved perspective on the resource implications of his decisions. PPBS includes the application of rigorous and comprehensive systematic analysis, of the cost-benefit type, on both an intra-program basis and an inter-program basis. The two main considerations in the analysis are the assessment of time-phased costs and time-phased benefits. By showing the costs and benefits of programs and their subdivisions, the analysis calls attention to important trade-offs. Thus PPBS may be of great assistance to university and college administrators.

Purpose of the Study

The purpose of this study is to present a general Planning-Programming-Budgeting System model for a college existing in a university decision-making environment. Once this is done, a case study will be presented for the College of Business Administration at the University of Florida.

The budgetary process is a vital activity in the operating life of an enterprise. Its end product, the budget, both structures the fiscal information that is developed and used in this process, and is perhaps the most essential tool which management possesses for making and implementing decisions. The budget organizes and expresses management thought and management action. It must, therefore, be related to the objectives and programs of the enterprise. A

rationally designed budget can be a powerful contributor to the effective and efficient accomplishment of managerial goals. A carelessly developed budget is a prime cause of bad decisions.

These statements apply to all types of organizations. The supply of resources rarely, if ever, equals the demand for them. Thus, decision making involves choosing among alternative ends and alternative ways to achieve these ends in light of the fact that the resources for their accomplishment are scarce.

All organizations require a crystallization of objectives, an analysis of the relative contributions of each subordinate organizational unit to the broad objectives of the overall endeavor, the development of plans, the measurement of resource costs of alternative courses of action, the allocation of inputs, the monitoring of progress toward objectives, and the appraisal of results. The process for performing these tasks is the budgetary process. The instrument through which the process is made operational is the budget.

The budgeting system typically utilized by a university is a combination of the formula and the incremental approaches (Council of State Governments, 1961, pp. 5-17). Levels of support are predicated upon enrollment predictions and are determined by support ratios and formulas as well as other factors. Enrollment projections are translated by means of productivity factors into the number of teachers that are required. Formulas are then applied to this number to

determine how many academic positions in research, extension, counseling, and administration are to be allocated. This system presents requests and consequent appropriations in terms of aggregate objects of expenditure, such as salaries and wages, operating expenses, and capital outlays. This system is concerned with fiscal matters, and this concern enables it to serve as an instrument to control spending. Its purpose is to ensure financial responsibility.

While the incremental formula budget approach possesses virtues for purposes of administration and accountability, several state governments (e.g., California, Colorado, Florida, New York, Ohio, Vermont, and Wisconsin) have deemed it necessary to replace or supplement this budget approach because of its limited effectiveness as a mechanism for resource allocation (Gross, 1969, pp. 132-133). It does not relate the objects of expenditure to organizational objectives or missions. For missions involving more than one organization it is difficult to develop consistent and comparable costing. Moreover, the short-run time horizon of incremental formula budgeting (a year or a biennium) does not support the development of an orderly, rational plan for the future. There is a lack of information for the analysis of alternative courses of action, the measurement of total costs of multi-year activities, and the evaluation of performance effectiveness. Thus, it is probable that there is no way of knowing how effectively resources are being allocated and employed among the universities in a state-supported higher-

educational system. Moreover, there is probably even less knowledge concerning how effective the allocation and use of resources are among the colleges in a university and among the departments in a college. The governments of the states mentioned previously are, therefore, taking steps to overcome the lack of potential which the incremental formula budget approach possesses with respect to serving as a management tool to assist in rational decision making.

The central thrust of current efforts to improve the governmental decision-making process in these states is in the direction of Planning-Programming-Budgeting Systems (PPBS). The apparent success of PPBS in the Department of Defense and in other departments and agencies of the federal government has convinced these state legislatures that this is the direction in which they must move.

In 1967, the Florida Legislature established the organizational machinery to enable the state government to develop its long-range financial planning on a program-oriented basis (e.g., Planning-Programming-Budgeting System) (1967 Florida Statutes, pp. 93-95). Based upon the authority contained in these Statutes, the Director of the State Bureau of Planning and the Director of the State Bureau of Budgeting have stated that the public university system in Florida must develop a PPB System for its 1971-72 and subsequent budget submissions.

The Office of the Chancellor of the Florida State University System is engaged in an effort to design a PPBS

program structure which will be applied to all universities under its control. When the effort is completed, it will have developed the following:

1. A program structure, including the program categories, subcategories, and elements.
2. The types of information that will be used in presenting plans to the Chancellor's Office.
3. The role and function of each individual and/or group in the preparation and review of the budget.
4. The decision-making constraints and flexibility at each level of responsibility.

This study examines the traditional or incremental formula budgetary process of a typical public university and specifically of the University of Florida. The focus of the examination is the use of the traditional budgetary process as an instrument for planning and effecting resource allocations. The study examines the budget process in the light of its uses and analyzes the ways, if any, in which the process fails to serve effectively a subordinate college with particular reference made to the College of Business Administration at the University of Florida. Against this background, the study proposes a planning and budgeting system that promises to be both feasible and effective. The heart of the proposal is

the application of the concept of the Planning-Programming-Budgeting System (PPBS) to the planning and budgeting process of a college within a university.

The writer can find no operational PPB System in existence in a university or in a college within a university. Several other states, as previously mentioned, are striving to design a program-oriented budgeting process for their respective state university systems. However, the only public operational PPB Systems are in the federal government at present ("Planning-Programming-Budgeting Systems Reexamined: Development, Analysis, and Criticism," 1969, pp. 155-178).

The argument around which this study is centered is twofold. The first part is that the Planning-Programming-Budgeting System can provide a more effective instrument to assist managerial decision making in a university and its subordinate colleges than is possible under the incremental formula budgeting approach. The major differences between PPBS and incremental formula budgeting are these:

1. The PPBS procedure emphasizes the products of educational activity (e.g., the expansion of knowledge) whereas incremental formula budgeting emphasizes appropriations, such as operating expenses.
2. The categorization structure in PPBS permits analysis of competitive or complementary programs without direct concern with organizational roles. Competition comes

into existence on an activity-by-activity basis within broad program areas rather than on an organization share-of-the-budget basis.

3. In PPBS, there is a longer-term view than in incremental formula budgeting which is normally limited to one or two years. The objective in PPBS is to determine total cost implications up to the planning horizon.

4. Central to the PPBS concept is the development and analysis of alternative activities or courses of action. New courses of action compete with the old ones. In incremental formula budgeting, there tends to be a concentration on the justification for changing current practice.

5. In PPBS, resource and financial data are tabulated and maintained on a program-by-program basis, thus facilitating the application of cost-benefit analysis. By showing the gains and the costs (that is, whatever would be given up) for each program, cost-benefit analysis calls attention to important trade-offs. For example, attention is directed to trade-offs between programs and between activities within a program. In incremental formula budgeting, objects of expenditure are broadly developed and then translated into

dollars. This practice makes it especially difficult to use a principal feature of PPBS--marginal analysis by program.

6. PPBS emphasizes the rational aspects of decision making; incremental formula budgeting emphasizes the tactical aspects of obtaining funds.

The second part of the argument is that in order for a PPB System to meet most effectively the internal planning and budgeting needs of a university and its colleges, the system must be developed by the university and the colleges and transmitted to higher authority. Otherwise, a PPB System will be developed and imposed from above. Such a system may be incompatible with the internal needs of the organizations involved and may also tend to create a decision-making environment in which the various public universities in a state and the various colleges in each university compete on the basis of political acumen rather than in terms of how effectively each one can contribute to the objectives of higher education.

The requirements of a subordinate organization, such as a college within a university or a university within a state university system, are usually best appreciated and understood by the decision makers within the subordinate organization.

Research Methodology

The research for this dissertation is exploratory in nature. A thorough search of the literature was made to identify the principles and concepts of PPBS, including the formats, procedures, and ideas which may be applicable to higher education.

The university decision-making environment represents a new realm in which to apply the PPBS process. Only in the past few years have attempts been made to apply the PPBS process as an operational management tool to realms outside the federal government ("Planning-Programming-Budgeting Systems Reexamined: Development, Analysis, and Criticism," 1969, pp. 155-178).

A PPBS model is developed for a college in a public university. The purpose of this model is to provide a structure for viewing, analyzing, and evaluating the programs and outputs of a college.

There is no precedent upon which the model presented in this study can rely. No operational university or college PPB Systems currently exist. Therefore, this presentation represents a new application for a proven management tool.

The PPBS model introduced in this study is based upon a PPBS design study. The lack of substantive effort in the university PPBS realm has meant that there are no meaningful primary sources of information available. Thus, reliance for background information has been placed on

secondary sources.

Available secondary sources include the U.S. Department of Defense, the U.S. Department of Agriculture, the U.S. Department of Health, Education, and Welfare, Congressional Hearings, the RAND Corporation, the State Government of New York, the State Government of California, and the literature--books, articles, and papers. By and large, these sources which are listed in the bibliography deal with PPBS at the federal and state government levels and make limited mention of the development and application of PPBS in institutions of higher learning. However, the PPBS principles, concepts, and ideas contained in these writings are used as much as possible.

Finally, conclusions are drawn concerning the development, implementation, and operation of PPBS in a college and recomendations are made.

Scope and Organization of the Study

The study presents an original PPBS design utilizing the general PPBS concepts and instruments which have evolved from the use of program-oriented planning and budgeting procedures in the federal government. These concepts and instruments are employed in the context of the specific circumstances of a college in a public university setting.

It is beyond the scope of this undertaking to design a university-wide PPB System. Such a system would, of necessity, have to take into account the various requirements of each

subordinate organization within the total institutional complex.

The study is structured into seven chapters as outlined below. Chapter I introduces the reader to the study by describing its purpose, research methodology, and scope and organization. In this way the perspective of the study is presented.

Chapter II deals with an analysis of the planning and budgeting approach which is traditionally found in a university environment. Particular attention is paid to the characteristics, advantages, and weaknesses of this approach in terms of its use as a tool to aid managerial decision making.

Chapter III describes the historical evolution of PPBS from its early formulations in the 1950's up to its current state of development. This includes its application to the U.S. Department of Defense and its adoption by the other departments and agencies of the executive branch of the federal government and by many state and local governments and the agencies which they support.

Chapter IV presents an in-depth analysis of what PPBS is, including its theory, purposes, concepts, characteristics, instruments, and limitations. In addition, the implementational problems which are likely to be encountered are discussed.

Chapter V focuses on PPBS in a university environment and proposes a PPBS model for a college in a university. A college of business administration is utilized for illustration purposes. The goals and some alternative organizational structures within colleges of business

administration to serve these goals are discussed. Next, the proposed PPBS model is specified, including a discussion of the operation of the model and of the types of measures in program evaluation. Then a case study of the proposed PPBS model is presented utilizing the College of Business Administration at the University of Florida. This study includes relating the proposed model to the PPBS program structure of the State of Florida and discussing how the model might be implemented and operated in the College of Business Administration. Then the proposed PPBS model and the Florida PPBS System are compared and contrasted.

Chapter VI is concerned with the information requirements of a PPB System in an institution of higher education. The emphasis is on the categories and types of information that are required.

Chapter VII presents a summary of the traditional budgeting approach employed in a university, the proposed PPBS process, and the utilization of the latter by a college within a university. Some conclusions are then drawn concerning the proposed model and its case study application.

CHAPTER II

THE TRADITIONAL APPROACH

Introduction

A vital function in the administration of an academic enterprise is the allocation of its resources. Some type of planning and budgeting process is required for this task. Most universities possess such a process. Its typical form is the so-called traditional approach which is formula-oriented on an incremental basis and in which the focus is on fiscal control and management.

This chapter examines the characteristics, advantages, and weaknesses of the traditional approach. No attempt is made here to deal with naive, ad hoc, or capricious budget making. Rather, the concern is only with the appropriations approach to traditional budgeting. The context is a public university and its subordinate organizational units.

Characteristics

Formula Orientation

The principal characteristic of the traditional approach to budgeting is its formula orientation which implies some level of comparability among the academic institutions to which the approach is applied. Within the university, the instruction effort, particularly the teaching of students,

is placed in a position of primacy. Thus, the crucial budgetary step is the determination of how many teaching faculty are needed.

Several substeps are required to arrive at this figure. First, the number of students to be taught must be estimated by level (e.g., lower, upper, and graduate). Student enrollments are projected on the basis of both headcount and full-time equivalents (FTE's), since it is on the basis of student full-time equivalent enrollment that the so-called student/teacher ratio is determined.

Second, the number of credit hours that the students will be taking must be estimated by level. In this way, the required number of student credit hours to be taught can be estimated.

Third, teaching faculty productivity factors must be decided upon by level. This involves a policy decision which can be predicated upon either of two bases. One is the estimated student full-time equivalent enrollment. This decision deals with how many full-time equivalent students justify a full-time equivalent faculty teaching position. For instance, it could be decided that 15 full-time equivalent graduate students justify one full-time equivalent graduate faculty teaching position. The second basis is the estimated number of student credit hours. This decision involves how many student credit hours justify a full-time equivalent faculty teaching position. For example, it could be decided that 325 upper division student credit hours

justify one full-time equivalent upper division faculty teaching position.

Fourth, after the productivity factors for each level have been decided upon and, depending upon the basis utilized, after either the total number of full-time equivalent students for each level or the total number of student credit hours to be taught at each level has been determined, it becomes a matter of simple division to obtain the number of full-time equivalent faculty teaching positions that will be required for each level.

Once this information has been ascertained, the next step is to determine the number of full-time equivalent faculty positions which are needed to support the other academic activities of a university. These activities include counseling, research, extension or public service, and administration. The number of full-time equivalent faculty positions for each of these activities is obtained by employing ratios which are based upon the number of full-time equivalent faculty teaching positions. For instance, the ratios might be as follow:

1 research position for every 5 teaching positions

1 counseling position for every 15 teaching positions

1 extension position for every 18 teaching positions

1 administration position for every 12 teaching positions

These ratios require policy decisions. They may be uniform for an entire university or they may vary from one organizational subunit to another.

The academic salaries must next be determined, and this constitutes the third area in which a policy decision is required. Faculty salary guidelines for the universities in a state university system are promulgated either by some higher authority within the system or by some authority in each university. These guidelines are normally developed from analyses of past salary levels and salary levels at similar institutions. On the basis of these data, projections are made for one year or a biennium. This process may be intended to make a particular university or a group of universities in a state educational system comparable in academic salaries with similar educational institutions across the country.

While it might appear that university administrators have no flexibility with respect to the internal allocation of faculty salary dollars, this is not usually the case. In many universities, administrators are not required to strictly adhere to the guidelines but rather are required only to stay within the budgeted ceiling on total faculty salary funds. Above-average salaries can be paid to exceptional individuals, but non-salary monies cannot be used for salary purposes. Other institutions exercise line-item control over faculty salaries. However, flexibility may be realized by allocating funds for merit increases and for

new positions on a lump-sum basis. The administrator can then distribute these funds as he sees fit. Strict line-item control affects the base positions only.

The formula approach is also utilized to a limited degree in developing the other three object of expenditure areas in the budget: other personal services (OPS), operating expenses (OE), and operating capital outlay (OCO). Other personal services include graduate assistants, student assistants, fellowships, faculty development, and certain minor items. The funding for graduate assistants is derived from the number and funding of faculty positions. The formula provides a maximum allowable number (15 percent) and a specified rate ($8,500 for each full-time equivalent graduate assistant). Student assistant funding is not formula derived but rather is based upon the amount of dollars provided for career service positions. After career service funding is estimated, a judgment is made concerning what the budget allocation should be for student assistants. Fellowship support is derived by having the number of fellowships equal 5 percent of the full-time equivalent graduate student body and the stipend per fellowship equal $4,050. The funding for faculty development is based upon the number of eligible faculty members and their average salaries. Operating expense funding is derived by formula. The rate is $1,250 per full-time equivalent academic position. Operating capital outlay is divided into three parts: replacement, new positions, and other. Only the part which

deals with new positions is derived by formula. The rates provided are $625 per new full-time equivalent faculty or administrative and professional position and $750 per new full-time equivalent career service position. The amounts for replacement and other are based upon judgment.

The traditional approach involves incremental, rather than zero-base, budgeting. Zero-base budgeting, as its name implies, starts out with nothing given and considers every item in the budget separately. Each item is viewed as competing for funds with all the other budgetary items.

Incremental budgeting, on the other hand, takes the budget of the preceding year or biennium and considers only the additions to or subtractions from that budget. It is assumed that past programs or activities will continue to exist. Only the value of the next budget item must be justified.

In addition to its other characteristics, the traditional approach possesses both a control function and a management function (Schick, 1966, p. 245). The purpose of the control function is to ensure compliance with official plans, policies, and procedures. The purpose of the management function is to ensure efficient performance of prescribed tasks.

Control Function

There are two ways in which the control function manifests itself. One is the categorization of funds by objects of expenditure. For instance, in the Florida higher education

system the objects of expenditure are salaries, other personal services, operating expense, and operating capital outlay (University of Florida, October, 1969, pp. EX-B-1 to EX-B-4). Funds are allocated to a university in each of the four categories, and the dollars in each category can be spent only for that purpose. The intent of this type of allocation is to show the things for which money is spent. However, there is no indication as to what was accomplished. Rather, the concern is with inputs.

The second manifestation of the control function is the classification of expenditures by line item. For example, the line items might be as follow for a Physics Department:

Professor	$20,000
Associate Professor	$16,500
Assistant Professor	$14,000
Instructor	$12,000

The dollars are tied to each line item and therefore cannot be transferred from one line item to another witin a department. However, it may be possible to transfer positions and their respective line-item dollars from one department to another. Moreover, a line item can be broken up so that more than one person can be funded on a part-time basis by the dollars in the line item. There is no requirement that the total number of dollars in a particular line item be used, but the number cannot be exceeded.

When budget dollars are allocated by object of expenditure, it is common for non-salary funds to be

distributed in a lump sum rather than by line item. The recipient administrator is accountable only for the total number of dollars in each of these categories. He has complete freedom in spending these monies for their stated purposes. For instance, expense funds can be spent for things such as materials, supplies, travel, rent, insurance, and so forth. Operating capital outlays include library books, motor vehicles, office furniture, typewriters, calculators, air conditioners, laboratory equipment, teaching aids, computers, and many other items, both minor and expensive.

Management Function

The management function manifests itself in the classification of funds in terms of activities. In a university these activities typically include the following (University of Florida, 1966):

Instruction
Organized Activities
Organized Research
Extension
Libraries
Student Services
Plant Operation and Maintenance
Auxiliary
Administration

The type of choice remains incremental. However, the emphasis is on the activity being performed and not the object

for which dollars are spent. Work efficiency and operational effectiveness are the factors of primary concern. Performance is the goal in contrast to the control function goal of fiscal responsibility.

In the traditional approach, the time span that is dealt with during the budgeting process includes several past years, the current budgeting period, and one future year or biennium. Elaborate cost-ratio presentations are made to support the budget request. Trend analyses are relied upon heavily. The result, typically, is a satisfactory document from control and management viewpoints. Organizational requests for funds and physical resources are presented. Justifications are included. Fiscal responsibility is assured by classifying funds in terms of objects of expenditure and line items.

Advantages

As with any process that is devised by man, the traditional approach possesses both advantages and weaknesses. In light of the current thrust of reform in government budgeting, it would appear that the defects outweigh the strengths (Schick, 1966, pp. 243-258).

The traditional approach, however, possesses several advantages. One is simplicity (Williams, 1966, pp. 27-30). Calculations are required, but they are neither excessive nor complicated. The approach employs a straightforward application of arithmetic and computational techniques. Analyses of historical data are carried out and projections based upon

these analyses are made for only one future time period. Thus, the budgeting process is relatively inexpensive in terms of time and money.

Another advantage is that the approach can be easily learned. Certain policy decisions have to be made, and the formulas have to be determined. Once these steps have been accomplished, it is not a difficult matter to apply the formulas within the constraints imposed by the policy decisions. The application becomes routinized. Knowledge and understanding of the approach can be gained quickly. Proficiency in utilizing the approach comes with relative ease.

A third advantage involves the measurements inherent in this approach. These measurements are not only fewer in number than in other approaches, but they are also easier to make and aggregate. Data are collected on the basis of organizations and organizational subunits. Multi-dimensional matrices are typically not needed. Rather, the measurements are in a single dimension.

A fourth advantage is the fairness of the approach in terms of its distribution of funds among organizations (Council of State Governments, 1961, p. 11). Since the allocation of resources is predicated upon student enrollments, the basis for this allocation is the same for each organizational unit. Once student enrollments have been estimated, what remains is the application of formulas and techniques to each organization within the particular academic enterprise.

One other advantage of the traditional approach is that it permits and encourages a decentralization of decision making and planning. Subordinate unit administrators, such as department chairmen and college deans and even college faculties, are involved in the decision making as well as in the planning and policy making. They do not function merely as suppliers of information to a centralized decision-making authority in the academic enterprise. Thus, those who must carry out decisions and implement policies at subordinate organizational levels are also meaningfully involved in the making of these decisions and policies.

Weaknesses

In addition to its advantages, the traditional approach possesses a number of significant weaknesses. First, this approach is not output-oriented. While it considers the products of educational activity in a general sense, it does not evaluate the products of this educational effort. The traditional approach emphasizes inputs and the sources from which they come. Much less concern is given to relating the consumption of resources with the broad goals of the university.

The traditional approach lacks systematic analysis. There is no explicit delineation of enterprise goals and objectives. The question, "Where are we going?" is not formally addressed for on-going activities. While legal criteria are met, effectiveness criteria are absent. Without formally defined objectives, it is difficult, if not impossible,

to determine measures by which to evaluate the ways to accomplish the objectives. Moreover, there is no systematic generation or explicit consideration of alternative means by which to carry out on-going activities. Alternatives get tremendous scrutiny before a new program is approved or disapproved. Once a program is approved, it becomes an on-going activity and is treated as discussed above.

A third weakness of the traditional approach is its short-run time horizon. There is no multi-year planning and programming of resources. Instead, consideration is given to a number of past years, to the current year, and to one future year or biennium. Many projects and activities in a university involve longer time periods than one or two years. Yet, this approach does not permit decision makers to identify explicitly and consider the time-phased implications of their decisions.

Essentially, the approach considers only fiscal resources (Williams, 1966, p. 15). The emphasis is on dollar appropriations with other resources relegated to a subordinate position. Yet, physical resources are as important as monetary resources. In the last analysis, monetary resources are a mirror reflection of real resources.

The incremental feature is the source of another weakness. Incremental budgeting is predicated upon the assumption that past endeavors and activities will continue in existence. However, the fact that something was done last year is scant justification for doing it this year and

next. While incremental budgeting may be less complicated than zero-base budgeting, the latter involves the review and evaluation of activities. Zero-base budgeting thus at least offers the promise of leading to a reduction in the number of activities for which the only justification is past existence.

Another weakness is the line-item feature under which there is a minimum of flexibility for the administrator to exercise his judgment and discretion. A specific amount of money is allocated in a rigidly defined manner. Fiscal accountability is strict, and the administrator who received funds by line item is left with little decision-making authority and responsibility in spending the funds.

The traditional approach does not contain a comprehensive classification structure for the activities performed in and by a university. Consequently, the spill-over effects of multi-faceted activities cannot be clearly ascertained and evaluated for the university as a whole. Vital inter-dependencies among different parts of a university are not perceived and analyzed (Meyer, 1966, p. 3). For example, several subordinate organizations may be contributing to a specific university research project in the field of pollution. The traditional approach does not possess a structural mechanism by which the relative value of each contribution can be ascertained and evaluated singly and in relation to the project as a whole.

The emphasis on organizational units is another weakness

(Carlson, 1969, p. 6). While this emphasis shows which organizations are performing certain activities, it reveals nothing about what is being performed in relation to university missions and goals. A given activity typically involves more than one organization within an academic enterprise. Yet, this interrelationship cannot be explicitly delineated and considered within the boundaries of the traditional approach. The focus on organizational units precludes it.

One final weakness is the emphasis on control and management rather than on planning (Schick, 1966, p. 245). The focus is on fiscal responsibility and the performance of prescribed tasks rather than on the economic allocation of scarce resources in circumstances characterized by uncertainty.

CHAPTER III

PPBS: AN HISTORICAL PERSPECTIVE

Introduction

An alternative to the traditional approach in university budgeting is the planning-programming-budgeting systems (PPBS) approach. In contrast to the formula orientation of the former approach, PPBS possesses a mission and systems orientation.

This chapter presents a brief statement on the history of PPBS. The presentation is divided into four parts: origin and early development, introduction into the Department of Defense, application throughout the federal executive branch, and adoption by state and local governments.

Origin and Early Development

It is possible to trace the lineage of PPBS back for several decades. Indeed, to do this might be proper for a dissertation which deals with the history of governmental planning and budgeting systems. However, it does not appear to be fruitful to repeat here what is available in the literature (see Novick, 1966, pp. 8-10 and Schick, 1966, pp. 244-257) and what is, at best, related only tenuously to current developments in PPBS. Consequently, PPBS is viewed as originating in a meaningful way with the development of the idea of budgeting by program and mission in 1954.

In the middle 1950's several economists began to call for

reforming the budgeting process in the federal government by adopting a mission-oriented approach (Schick, 1966, p. 251). They named this approach program budgeting (the current name is PPBS).

These economists contended that the budgeting approach which then existed in the federal government did not aid rational decision making and, hence, was not conducive to effective resource allocation. Further, they argued that the budgeting system of the federal government should permit the evaluation of activities and their resource requirements to be on the basis of broad governmental missions and objectives and the contributions which are made to these by each activity. Arthur Smithies, one of these economists, framed it in terms of a budget principle which stated that "expenditure proposals should be considered in the light of the objectives they are intended to further, and in general final expenditure decisions should not be made until all claims on the budget can be considered" (1955, p. 16). Thus, the approach that was advocated revealed not only the resources being consumed but also the output relative to governmental missions being achieved.

Initially, these economists recommended the adoption of program budgeting by the Department of Defense. As members or associates of the RAND Corporation, they were concerned with defense-related problems. Moreover, then as now, defense expenditures accounted for a huge share of total federal outlays.

The fundamental argument advanced in support of program budgeting was "that a government can determine its policies most effectively if it chooses rationally among alternative courses of action, with as full knowledge as possible of the implications of those alternatives. The requirement of choice is imposed on it by the fact that any government is limited by the scarcity of resources" (Smithies, 1965, p. 26).

In describing the new system, a program was defined as "the sum of the steps or interdependent activities which enter into the attainment of a specified objective. The program, therefore, is the end objective and is developed or budgeted in terms of all the elements necessary to its execution" (Novick, 1954, p. 17).

The call for budget reform in the federal government, particularly in the Department of Defense, continued. This culminated, in 1960, in the publication of The Economics of Defense in the Nuclear Age, a classic work on effective military resource allocation (Hitch and McKean, 1960). In early 1961, with a new administration in Washington and a new Secretary of Defense whose background included broad training and experience with operations research and systems analysis, program budgeting became the order of the day at the Pentagon.

Introduction into the Department of Defense

When Robert S. McNamara became Secretary of Defense in 1961, he directed that an integrated planning and budgeting system be applied to military budget decision making. Prior to this, the Department of Defense did not have an integrated mission-oriented system for planning and allocating its resources. Rather, it relied upon the classification and allocation of resources on the basis of categories such as research and development, procurement, construction, operations and maintenance, and military personnel (Held, 1966, p. 102).

Since 1963, budgeting in the Defense Department has been mission-oriented. It is structured into nine major programs (Hartley, 1968, p. 79):

1. Strategic Retaliatory Forces
2. Continental Defense Forces
3. General Purpose Forces
4. Airlift and Sealift Forces
5. Reserve and National Guard Forces
6. Research and Development
7. General Support
8. Military Assistance
9. Civil Defense

The overall budgeting process is a three-phased effort consisting of planning, programming, and budgeting. It is known as PPBS to denote its systems focus. Defense

planning has become a continuous activity to study alternative ways to achieve national security objectives. Emphasis is placed upon choosing the alternative that either yields the greatest effectiveness for a given cost or achieves a specified objective at the lowest cost (Hitch, 1965, p. 74).

The programming phase involves translating Department of Defense activities into "meaningful program elements, i.e., integrated combinations of men, equipment and installations whose effectiveness could be related to our national security objectives". These elements constitute the "basic building blocks as well as the decision-making levels of the programming process" (Hitch, 1965, p. 75). An example of a program element is the F-4 fighter force with men, weapons, and supplies.

The budgeting phase involves allocating funds on the basis of the program structure and appropriation accounts. The upcoming annual budget represents the first year of the five-year program and financial plan.

As developed in the Department of Defense, the planning-programming-budgeting system consists of five major items (Novick, 1967, pp. 89-90):

1. A mission-oriented set of categories collectively known as a program structure.
2. The systematic analysis of alternative courses of action, including the detailed examination of costs and effectiveness.

3. A five-year program and financial plan which is periodically updated.
4. A program change proposal procedure which permits new programs and changes in existing programs to be considered throughout the year.
5. The evaluation of performance toward specified objectives.

The PPB System emphasizes multi-year planning rather than annual budgeting. This gives an improved view of weapon system costs, which typically are spread over more than one year. It also results in integrated planning in the defense establishment, in contrast to the prior practice of each service forming its plans separately and then having them aggregated at the Department level. With the new system, a unified Defense Department plan has been achieved (Novick, 1967, p. 90).

Application Throughout the Federal Executive Branch

The experience of PPBS in the Department of Defense prompted President Johnson to decide that this approach should be applied to the other departments and agencies of the executive branch of the federal government. On August 25, 1965, the President announced his decision (Novick, 1967, pp. xix-xx):

> This morning I have just concluded a breakfast meeting with the Cabinet and with the heads of Federal agencies and I am asking each of them to immediately begin to introduce a very new and very

revolutionary system of planning and programming and budgeting throughout the vast Federal Government, so that through the tools of modern management the full promise of a finer life can be brought to every American at the lowest possible cost.

Under this new system each Cabinet and agency head will set up a very special staff of experts who, using the most modern methods of program analysis, will define the goals of their department for the coming year. And once these goals are established this system will permit us to find the most effective and the least costly alternative to achieving American goals.

This program is designed to achieve three major objectives: It will help us find new ways to do jobs better, and to do jobs less expensively. It will insure a much sounder judgment through more accurate information, pinpointing those things that we ought to do more, spotlighting those things that we ought to do less. It will make our decision-making process as up to date, I think, as our space-exploring programs.

Everything that I have done in both legislation and the construction of a budget has always been guided by my very deep concern for the American people, consistent with wise management, of course, of the taxpayer's dollar. So this new system will identify our national goals with precision and will do it on a continuing basis. It will enable us to fulfill the needs of all the American people with a minimum amount of waste.

And because we will be able to make sounder decisions than ever before, I think the people of this nation will receive greater benefits from every tax dollar that is spent in their behalf.

Subsequent to the President's announcement, an enormous effort was initiated to adapt the Defense Department PPBS model for application to the civilian sector. Experienced PPBS personnel were transferred from the Pentagon to other agencies. In addition, several Congressional committees turned to PPBS to assist their evaluation of executive program and budget proposals.

The Bureau of the Budget was designated as the agency responsible for installing planning-programming-budgeting systems throughout the civilian sector. Detailed guidelines and other materials were developed and promulgated to support the design and implementation efforts. Yet, progress with the new approach has been slow.

A number of factors have been responsible. Trained and experienced personnel for all the analytical staffs in each organization were not available initially. They had to be introduced to and trained in PPBS. As with any new managerial tool, there has been resistance to PPBS. Its illumination of heretofore undefined procedures and hidden activities and its tendency toward centralization have been disturbing to many people. Moreover, PPBS possesses its own jargon, and this has compounded the terminological confusion associated with this approach relative to other approaches. Finally, there is confusion concerning what PPBS really is. The literature contains a wide assortment of views on the nature and disposition of PPBS. This

divergence of opinion is shared by those who are designing and implementing PPBS in the federal government. What PPBS is not appears to be clearer to most people.

Recently, a study which had evaluated the progress toward the implementation and use of PPBS in the civilian agencies of the federal government was published (Harper et al., 1969). The study found that agency progress varied from "substantial" at one end of a continuum to "slight" at the other end. Only those agenices which view PPBS primarily as a tool to assist internal decision making have been making substantial progress. The conclusion is that PPBS must be supported and utilized by top administrators if it is to assist decision making and resource allocation.

Adoption by State and Local Governments

PPBS is also being adopted by a growing number of state and local governments. They are working to develop government-wide PPB Systems. This differs from federal practice where each agency is developing its own system. However, with the exception of three or four federal agencies no governmental units currently possess fully operational PPB Systems (Harper et al., 1969, pp. 623-632).

The Ford Foundation is presently supporting a collaborative PPBS project involving George Washington University and five states, five counties, and five cities throughout the country. The states are California, Michigan,

New York, Vermont, and Wisconsin. The counties are Dade County in Florida, Davidson County in Tennessee, Los Angeles County in California, Nassau County in New York, and Wayne County in Michigan. The five cities are Dayton, Denver, Detroit, New Haven and San Diego (Gross, 1969, p. 133). Furthermore, the states of Colorado, Florida, Illinois, and Ohio and the cities of New York and Philadelphia are developing their own PPB Systems ("Planning-Programming-Budgeting System Reexamined: Development, Analysis, and Criticism," 1969, pp. 167-177).

These efforts are intended to improve the basis for decision making and resource allocation by these governments. Government planning will also be improved. A mission-oriented system which emphasizes basic government objectives will bring this about.

While almost every state possesses a planning agency, many of these currently have narrowly defined spheres of responsibility. The analysis and evaluation of alternatives in support of decision making and resource allocation are not conducted in many states. Comprehensive planning is not now a reality. Hence, vital interdependencies among governmental activities are not illuminated and considered.

State, county, and city governments have come to realize that they are "big business," and this calls for the application of sound business practices. With limited resources to meet the rising public demand for goods and services, an improved allocation of resources has become

a necessity. This includes both providing a solid analytical base to assist decision making and considering the future consequences of current allocation decisions.

Even though the only operational PPB Systems are in a few agencies of the federal government, many state and local governments are making progress in their developmental efforts. California, Illinois and New York have issued detailed guidelines and instructions on their PPB Systems. Individual agencies in Florida and Ohio are developing PPB Systems within the structural framework of their respective state systems. Dade County in Florida and Nassau County in New York are in the process of getting their PPB Systems on-line (Gross, 1969, p. 133).

This is not to say that problems are nonexistent. Moving from theory to practice engenders thorny pragmatic issues. However, state and local governments realize that with the challenges now confronting them and the proliferation of federal programs, a new planning and budgeting philosophy is needed. PPBS is looked upon to provide that philosophy.

Undoubtedly, one reason why many state governments are striving to develop PPB Systems is the need to be able to justify adequately their proposals for federal support and grants-in-aid. Since federal agencies are required to submit justifications for their programs and activities within the context of PPBS to the newly organized Office of Management and Budget, proposals submitted by state governments must be in the same context if they are to be accepted and funded.

Similarly, county and city governments which want federal and/or state support will, therefore, need PPB Systems.

CHAPTER IV

PPBS: A DESIGN FOR DECISION

Introduction

PPBS is a new management tool. It can provide powerful assistance to a decision maker by displaying enterprise goals and alternative means of achieving them, including both the benefits and costs of each alternative. Given that resources are limited, PPBS can lead to their more effective allocation and management.

Yet, a question remains. What is the nature of this new approach? An answer must be provided if PPBS is to be understood and effectively utilized.

This chapter presents a discussion on the nature and disposition of PPBS. The presentation is partitioned into five sections: the nature of PPBS, the role of analysis, PPBS in operation, some limitations and problems in PPBS, and implementation issues with PPBS. The focus of the discussion is a public university and its community of organizations.

The Nature of PPBS

Purpose of PPBS

The purpose of PPBS is to integrate the planning, programming, and budgeting functions of an enterprise into a formal system. Such a system provides better information on organizational objectives and alternative ways to attain them, including explicit presentation of the costs and benefits of these alternatives. The primary aim is to help administrators improve their decision making in the spheres of resource allocation and management. An additional aim for a public university is to show the government and the public what is being accomplished with the resources invested in public higher education. PPBS also creates a decision-making environment in which the basis of competition among subordinate organizational units in an enterprise (e.g., colleges in a university) is the effectiveness of subordinate unit contributions to university goals.

On the operational level, this purpose brings about several noteworthy changes. For one thing, it literally forces decision makers to crystallize organizational objectives and to relate organizational activities to these objectives. Further, it brings about the systematic analysis of existing and proposed activities on the basis of costs and benefits. Planning becomes long-range, typically involving a time span of ten years or more, and considers the multi-year implications of current decisions. Programming and budgeting

utilize a five-/or six-year forward time horizon, depending upon the particular PPB System being considered. In either case, the first future year is the detailed budget year. All this means developing an integrated system for both allocating and managing resources.

Conceptual Considerations

PPBS is based upon three fundamental ideas. These are the concepts of a goal, a program, and effectiveness (Novick, 1968, pp. 2-3). Together, these concepts account for the structural, analytical, and informational particulars inherent in a PPB System.

A goal is a broad aim of and, therefore, presumably justifies the existence of an enterprise. For instance, one goal of a university is to disseminate knowledge. However, because of the high level of abstraction of this goal, concrete operational objectives must be delineated to assist in the development and appraisal of organizational activities.

A program is a group of activities which are performed to accomplish a goal. For example, one program in a university may be instruction, and this includes both purely instructional activities and those support activities which can be clearly defined and associated with this effort.

In attempting to accomplish a goal, programs are faced with a number of constraints. These may be legal, organizational, political, physical or technological, and budgetary. Budgetary constraints are probably the most

important ones in most cases.

Within the lexicon of PPBS, the notions of cost-effectiveness analysis and cost-benefit analysis are utilized when alternative systems or courses of action are being evaluated (Fisher, 1966, p. 12). Effectiveness is the degree to which a desired outcome, namely the accomplishment of a goal, is achieved. Closely related to effectiveness is the idea of benefit. Benefit is the valuation placed on the utility which is derived from the desired outcome. Both effectiveness and benefit have a cost. Cost is the dollar value or price of the resources which are consumed in the process of achieving the desired result. However, cost can also be viewed as an opportunity cost or the resource cost of the next best alternative. If there are two alternatives, A and B, the opportunity cost of alternative A is that which would have to be given up, namely alternative B. Conversely, the opportunity cost of alternative B is alternative A.

Distinguishing Characteristics of PPBS

PPBS possesses four distinguishing characteristics. These are (Hatry and Cotton, 1967, pp. 16-28):

1. A goal or objective-oriented focus for the activities of an enterprise (e.g., a university). This focus is normally manifested in a goal-oriented program structure divided into categories, subcategories, and elements.

2. A multi-year time horizon for planning, analysis, and budgeting. This permits the decision maker to weigh the future implications of current decisions.

3. The application of rigorous and comprehensive systematic analysis, both quantitative and non-quantitative. This involves the identification and evaluation of enterprise objectives, the identification and examination of alternative ways to achieve these objectives, the explicit appraisal of the time-phased resource costs of each alternative course of action, and the explicit appraisal of the anticipated multi-year benefits of each alternative course of action. Analysis of this type requires the support of a comprehensive information system.

4. The evaluation of performance on the basis of contribution to enterprise goals. For instance, the graduation of students in various disciplines must be appraised in relation to university objectives in this sphere. This kind of evaluation also requires a comprehensive information system to support it.

Major Instruments of a PPB System

In helping to improve the allocation and management of resources, the typical university PPB System would utilize the following instruments (Hatry and Cotton, 1967, pp. 14-30):

1. An across-the-board program structure.
2. A multi-year program and financial plan.
3. Special analytic studies.
4. Program memoranda.
5. Program change proposals.

An across-the-board program structure

One of the first steps that is undertaken in developing a PPB System in a university environment is the explicit delineation of university goals within the context of its broad mission. Once this is accomplished, the various activities of a university can be classified into program categories, subcategories, and elements. Each category and its subdivisions contribute toward an identified goal. These groupings of activites by goal-oriented categories and category subdivisions collectively constitute the program structure in a PPB System. This type of classification facilitates the comparison of costs and benefits of alternative courses of action.

A program structure normally includes a three-level taxonomy: program categories, subcategories, and elements (Hartley, 1968, pp. 85-86). Program categories provide the

framework in which major goals and activities of an organization are considered. These categories represent the areas of the major endeavors of the organization. Typical programs or program categories in a university may be instruction, research, and public service (Brady and Baughman, 1968, pp. 4-5). Program subcategories represent a breakdown of the program or program category level. They group organizational activities on the basis of narrow objectives which contribute to overall program category goals. Program elements are subdivisions of program subcategories and cover activities which relate directly to the objectives of subordinate organizations within the larger organization while at the same time contributing to the overall goals of the organization. Program elements are the foundational blocks of the program structure.

In order to facilitate decision making, the typical program structure cuts across subordinate organizational lines (Carlson, 1969, pp. 20-21). This is so because the program structure is goal or objective oriented, and activities contributing to each objective are usually performed by more than one organizational unit or sub-unit.

There are a number of other criteria for a program structure in addition to its goal orientation. One of these is the information system that is necessary to support a particular program structure. The information system usually contains data on dollars spent, resources consumed,

and output realized. These data deal with the past not the future, come from a variety of sources including work reports and accounting records, and present aggregates and averages in terms of resource units and dollars. Informational capabilities, both present and future, are an important consideration in the design of a program structure.

Experience at the University has shown that an increase in the detail contained in a program structure is accompanied by a geometric increase in information and documentation requirements. This means a more comprehensive information system with greater storage and retrieval capabilities is needed together with more equipment and manpower to make the system function. Since this type of information system is usually automated, the need for computer programmers also becomes greater.

Cost is another criterion, and it is closely related to the previous one. Increased documentation and information requirements are very costly, particularly when electronic storage and instant replay are involved. In addition, skilled manpower is expensive.

Feasibility is also a criterion in designing a program structure. It might not be possible either to obtain the necessary data or to evaluate performance within a particular program structure design. For example, meaningful cost allocations might be impossible within a design that involves joint costs. Thus it would be necessary to change the program structure or design a completely new one.

One other criterion involves the programming of resources. The primary purpose of a program structure is to facilitate the allocation of resources and assist the budgetary decision making that is associated with this. Accordingly, each group of activities which serves a particular goal is displayed in one primary location, regardless of the organization that is performing the activity. In this way, duplication is avoided and confusion is minimized in the program structure.

There is no such thing as a perfect program structure (Carlson, 1969, p. 27). Each organization has particular characteristics and goals, and they should be reflected in its program structure. Moreover, circumstances change with the passage of time. Therefore, the program structure must be periodically examined in the light of these changes and modified when it is decided that change is necessary.

Information structure

A type of structure required to provide useful inputs to a PPB System is an information structure. One of its purposes in a college is to keep each academic department chairman informed of what activities are being performed by the other academic departments of the college. This enables each department chairman to be cognizant of events which may have a bearing on his carrying out his administrative responsibilities.

While an information structure may be very similar to

a program structure in format, it is not used by administrative authorities in the college to make program decisions and budget allocations. This is the function of the program structure. Because of this functional separation, an information structure typically tends to be duplicative (Carlson, 1969, p. 18). That is to say, an item or operation may be displayed in more than one place in the structure if information that pertains to this operation is relevant to more than one organizational goal. This can be particularly true of a college where the resource inputs are essentially the same for all primary programs and the goals of the college are not mutually independent. Therefore, in aggregate terms, the resources displayed in the information structure and its tabular presentations will be greater than the resources available to the college and displayed in its program structure and plan. In the terminology of PPBS, multiple locations of an operation are known as "non-add" presentations, and they are made for informational purposes.

A multi-year program and financial plan (MYPFP)

A multi-year program and financial plan is an all-inclusive documentation of enterprise programs and their subdivisions (Hatry and Cotton, 1967, pp. 20-23). The presentation follows the program structure and is in terms of the resources and dollars required over a planning horizon composed of the upcoming budget year and a number

of years beyond it. This instrument provides a record of enterprise programs. It is, thus, the fundamental planning document in a PPB System.

The number of years considered beyond the upcoming budget year is typically four or five, but it may be more depending upon the programs being considered. This time period permits the future resource and dollar implications of past and current decisions to be displayed. However, the data for these out-years are not as detailed as they are for the upcoming budget year. The purpose of the out-year display is to show the general level to which existing decisions commit the organization.

A multi-year program and financial plan is composed of two closely related sections: a multi-year program or resource plan and a parallel multi-year financial plan (Hatry and Cotton, 1967, pp. 20-22). The multi-year program plan displays the resource requirements of planned programs over the planning horizon of the organization. The multi-year financial plan displays the dollar costs of planned programs over the same planning horizon.

For a university, the resource requirements would include faculty members, support personnel, physical facilities, equipment, and supplies and services. The dollar costs of these resource requirements would reflect the financial needs of the university. By presenting a picture of program dollar costs on a time-phased basis, the multi-year financial plan allows the university decision

maker to gain an improved perspective on the financial and resource implications of his decisions.

In the federal government the forward time horizon selected for the multi-year program and financial plan is five years (Novick, 1967, pp. 89-90). This includes the upcoming budget year plus four out-years. California and Ohio have chosen a longer future horizon (State of California, 1969, pp. 12-13 and Brady and Baughman, 1968, pp. 7-8). The state government of Florida has selected a six-year forward time horizon composed of the upcoming budget year plus five out-years (Florida Office of State Planning, 1969, p. 12). This means that the initial PPBS submissions in Florida will deal with the fiscal years 1971-72 through 1976-77.

Special analytic studies (SAS's)

Special analytic studies are program analyses (Fisher, 1966, pp. 11-13). They are required for carrying out analytic comparisons, usually in terms of costs and benefits, of programs or program categories and their subdivisions because these comparisons are difficult and complicated in most instances. The special analytic studies comprise the analytic foundation for the decision choices made and reflected in the program memoranda.

As stated previously, special analytic studies involve the application of rigorous and comprehensive systematic analysis. In reality, this analysis is aimed at sharpening

the intuition and judgment of the decision maker, for ultimately it is his intuitive and judgmental capacities that resolve most strategic planning decision issues.

The analytical approach typically employed in the special analytic studies is known as cost-benefit analysis. It involves the systematic and critical examination of alternative courses of action for achieving certain objectives over the multi-year planning horizon. The goal is comparability of alternatives--not absolute accuracy with respect to their costs and benefits (Novick, 1968, pp. 7-8). Absolute accuracy is not obtainable in long-range planning because this planning involves uncertainty. The special analytic studies can include not only the specification of additional alternative courses of action to those originally delineated, but also the modification of original objectives. The two main considerations in the analysis are the assessment of the time-phased costs and the time-phased benefits of each alternative course of action under examination.

There are two conceptual approaches which can be used in these studies. One is the fixed-benefit approach whereby the analysis attempts to reveal the alternative course of action which will achieve the given level of benefit at the lowest cost (Fisher, 1966, p. 14). The second approach is the fixed-budget approach whereby the analysis attempts to ascertain the alternative course of action which yields the greatest benefit for the given

budgeted expense (Fisher, 1966, p. 15).

In a university decision-making environment, the second approach will probably be more acceptable. This is because the benefits of educational activities are often difficult to measure. It may be easier to start with a budget of a certain size and compare the benefits of alternative programs rather than to define equal benefit programs and subprograms and then compare costs. Thus, it will not be possible to avoid completely the measuring of benefits. Such measures will be necessary to compare programs between one university and another in a state university system, as well as one program versus another in a given university.

Program memoranda

A program memorandum is a document which defines the objectives and expected accomplishments of a program category and its subdivisions and which provides the analytic support for the particular program category entries in the multi-year program and financial plan (State of California, 1969, p. 14). Normally a program memorandum contains narrative and tabular material which documents the strategic decisions made, the organizational plans flowing from them, and the reasons why the particular decision choices were made. The program memorandum for a program category thus explains the analytical basis for the decisions made. The special analytic studies are concerned with the detailed analysis.

A program memorandum summarizes the findings of this analysis.

The program memorandum, one for each program or program category in the program structure, is also the vehicle used annually to revise and update the multi-year program and financial plan and to document these alterations for higher authority (Hatry and Cotton, 1967, pp. 29-30). Collectively, the program memoranda provide the backup for entries made in the multi-year program and financial plan by:

a) Explicitly delineating the objectives of the university and justifying their choice.

b) Recording performance toward achieving these objectives.

c) Showing the effects on key program areas of changes in budget allocations.

d) Summarizing the costs and benefits of alternative future activities within programs and subdivisions of programs.

e) Recommending to the next higher level of authority the policies and the dollar expenditures that will result in the achievement of desired objectives.

f) Providing information to subordinate organizations in a university explaining why their recommendations were accepted or rejected.

Program change proposals

A PPB System requires that an explicit mechanism be provided for requesting changes in and updating resource allocation decisions during the operating year (Novick, 1967, pp. 98-100). The program change proposal is necessary because organizations, irrespective of hierarchical level, cannot possibly foresee all the opportunities and difficulties that will arise during the operating year. Accordingly, a PPB System must be flexible enough to respond to changing circumstances. The program change proposal mechanism provides this flexibility. The instrument is known as a program change proposal rather than as a budget change proposal in order to retain the primacy of the program perspective and its crucial role throughout the planning horizon of the organization. This is particularly important because budgetary and resource changes made during the operating year normally necessitate the revision of out-year budgetary and resource estimates in the multi-year program and financial plan.

The program change proposal mechanism is the means for requesting all changes in the multi-year program and financial plan during the operating year. When these changes are approved by the appropriate authority, they are incorporated into the multi-year program and financial plan. In this way, the multi-year program and financial plan is maintained as an up-to-date document.

Program change proposals are utilized in a PPB System which is operating to some degree. The reason for this is that in order to change or modify a program, it must exist in the first place. Until a PPB System is operational, at least to some extent, resource allocations cannot be made within it and thus cannot be changed.

When a newly developed PPB System is being implemented, it is necessary to have an instrument which deals with the resource and dollar requirements of programs that are being developed within the framework of the system for the first time. The information that is normally presented in this kind of instrument includes the following:

1. Manpower requirements by type.
2. Financial requirements by type.
3. Funds by source.
4. Space requirements by type.
5. A priority designation.

As a PPB System is first being implemented, this information can also provide backup both for entries that are made in the multi-year program and financial plan and for narrative material that is presented in the program memoranda.

Once a PPB System is implemented and becomes operational, a program change proposal procedure is utilized. This procedure is a formalized one within a PPB System, and it helps to ensure the following (Tucker, 1966, p. 95):

1. That major decision making follows a prescribed channel.
2. That the process for review of proposed changes is complete and efficient.
3. That program decision making is based upon the best information that is available, with explicit consideration being given to time-phased cost implications.
4. That every major proposed program change is implemented only after higher authority has approved it.
5. That an up-to-date approved five-year program and financial plan is always available for decision makers.

Thus the program change proposal procedure not only channels and enhances program decision making but also enables modifications in programs to be made expeditiously without having to wait for the annual budget cycle.

A proposal to make a change in a program is normally based upon an analytical study which considers the long-term costs and benefits of alternative courses of action as well as possible trade-offs among them. In this way, analysis supports not only the annual budget cycle but also the procedure which permits changes in programs to be made throughout the operating year.

Each proposal for a program change contains both

narrative and tabular material. The narrative describes the reasons for the proposed change, how the change differs from prior practice, what impact it is estimated the change will have, what other alternative courses of action were considered, and what criteria were used in choosing the proposed alternative over the other alternatives which were considered. The tabular material contains the multi-year data on costs and benefits which supplement the narrative presentation.

Advantages of PPBS

PPBS possesses certain advantages, in addition to those mentioned in the previous chapter, when compared with conventional budgeting. With PPBS the resources consumed are explicitly related to the results achieved with them (Novick, 1968, pp. 3-4). Thus a cause and effect relationship is shown.

Organizations are related to the program structure by means of a crosswalk or matrix (Carlson, 1969, pp. 23-24). Crosswalks are required because contributions to each program are typically multidimensional.

Moreover, PPBS considers both physical resources and dollar appropriations (Hatry and Cotton, 1967, pp. 20-22). The administrator can base his decisions upon and see their future implications in terms of both real costs and monetary costs.

Theoretically, PPBS is zero-base rather than incremental (Schultze, 1968, pp. 79-80). It views programs

and activities from the ground up. As a result, programs and activities whose only justification is past existence are more likely to be discarded, thus releasing resources for more pressing endeavors.

What PPBS Is Not

The views of what a PPB System is are quite varied (Hartley, 1968; Schultze, 1968; Gross, 1969; Carlson, 1969; Mushkin and Willcox, 1967; State of California, 1969; Brady and Baughman, 1968; Fisher, 1966; Nickerson, 1968; Williams, 1966; and Novick, 1954, 1964, 1966, 1967, and 1968). However, there is some agreement concerning what PPBS is not.

First, PPBS is not a system which in itself centralizes decision making. Sophisticated analytical techniques are used in PPBS. While these techniques present the decision maker with the potential to broaden his span of control, they are inherently neutral with respect to the centralization-decentralization dichotomy. It is recognized that centralization can result from using PPBS because superior analytical and informational technologies present a decision maker with the opportunity to exercise more control. However, this centralization is intentionally brought about by the decision maker. It does not happen automatically under the PPBS approach (Carlson, 1969, p. 31).

Second, PPBS is not just a different method of conventional budgeting (Novick, 1968, p. 3). Further, it is

not merely a more detailed numbers game utilizing simulation models and other mathematical techniques in order to arrive at the same conclusions as before (Carlson, 1969, p. 31). Rather, PPBS is a new way to view the activities of an enterprise. The primary consideration is what is accomplished or produced rather than what is consumed. The emphasis is on goals and output and the means to achieve them in constrast to past emphasis on budgetary inputs and the organizational units consuming them. In this respect, PPBS represents a break from previous practice.

Role of Program Analysis

The role of analysis in PPBS is to improve decision making by sharpening the judgmental capabilities of the decision maker (Fisher, 1966, p. 11). A program analysis model is presented in Figure 1. Of primary importance is the logical sequence into which program analysis channels thinking. The sequence normally involves the crystallization of goals, the determination and examination of alternative ways to accomplish the goals, and the choosing of the most desirable alternative from among those that are available. This is an iterative process, and it can also lead to the modification of original goals. Several other factors, such as the definition of criteria, the treatment of uncertainty, and the consideration of trade-offs, are also included in this sequence.

Program analysis requires that the goals of the

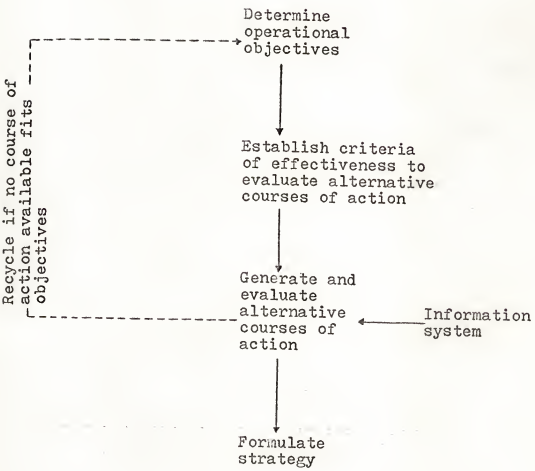
Determine operational objectives
Establish criteria of effectiveness to evaluate alternative courses of action
Generate and evaluate alternative courses of action
Information system
Formulate strategy
Recycle if no course of action available fits objectives

FIGURE 1

A PROGRAM ANALYSIS MODEL

enterprise be explicitly presented. This serves to clarify what the enterprise is striving to accomplish. Further, this forces the administrator to examine critically these goals in light of changing circumstances and to make explicit the assumptions and parameters which have a bearing on the goals.

Within the context of the goals of an organization, operational objectives for the primary programs in the program structure have to be established. This is because goals are usually too broad to be operationally meaningful. Explicitly stated objectives for the organization as a whole and for each subordinate organizational unit are needed for every major program in the structure. In this way, personnel have something concrete toward which to strive.

The next step in the analysis is the establishment of criteria by which to evaluate alternative courses of action for accomplishing the objectives of each program. Usually, the criteria employed are costs and benefits and the relationship of one to the other. The costs of an alternative are the resources consumed by it and hence not available for another purpose. Benefits are the contributions made toward a specified objective. Quantifiable benefits can yield an objective basis upon which to evaluate alternative courses of action. However, in many instances, some of the benefits may not be quantifiable. For example, a particular course of action may be viewed favorably because it will result in the development of a capability in urban planning

and design within an organization. This capability may be regarded as desirable because the urban area appears to hold great promise for federal support in this decade. In this case, the benefit is the expected probability value of federal support. It represents a value judgment on the part of the decision maker when he determines and weighs the benefits of alternative courses of action for achieving a specified objective. Since these alternative courses are usually substitutes for one another, trade-offs can be made among them. The consideration of meaningful trade-offs is made possible by the fact that cost-benefit analysis shows the total cost of a program and its component parts, not just the costs of one organizational unit. Thus resident instruction, correspondence study, and workshops may all be alternative ways to disseminate knowledge in a university, and trade-offs can be made among them to achieve this university goal.

Once these criteria have been established, the generation and evaluation of alternative ways to achieve the objectives of the college can commence. This includes obtaining pertinent data from the information system that supports the PPBS process and applying them in this phase of the analysis. In addition, this involves proposing the means by which to accomplish the objectives that were made explicit earlier in the analysis. The alternative proposals for each program are evaluated on the basis of costs, benefits, and other criteria. If the courses of action which are available are not consistent with the delineated objectives of the college,

a recycling of the analytical process must take place in order to permit these objectives to be reconsidered. This type of recycling can occur as many times as necessary to reconcile objectives with the means to carry them out.

In evaluating alternative courses of action, a standard or criterion must be used. It enables the administrator to arrange the alternatives in preferential order. His choice of the most preferred alternative thus becomes much more objective than it otherwise would be.

Moreover, consideration must be given to the element of uncertainty in evaluating alternative courses of action. These alternatives normally have multi-year implications, and uncertainty is an inherent characteristic of the future. Program analysis should explicitly consider this uncertainty, because it bears so importantly on the outcomes of multi-year alternatives. Techniques such as sensitivity analysis and a fortiori analysis can be helpful here (Fisher, 1966, p. 16).

When the ends-means reconciliation is brought about, the next step involves choosing a particular course of action to achieve each specified objective and formulating this choice into a strategy. This strategy formulation phase is concerned with developing specific plans of action to achieve the program objectives of the college.

Program analysis such as that described in this section is not a one-time affair each year; rather, it is a process which should continue to function throughout the year. The

analysis can thus support not only the annual preparation of program memoranda but also the generation of program change proposals throughout the operating year.

PPBS in Operation

A PPB System uses the instruments described previously to operate in the following manner. Special analytic studies are conducted to identify and evaluate alternative courses of action for achieving desired goals and, when deemed necessary, to modify these goals. On the basis of the findings of these studies, an annual program memorandum is written for each program category (as identified in the program structue). Taken together, these program memoranda present the narrative and tabular material which translates the results of the special analytic studies into program plans and into recommended resource and budget allocations (the multi-year program and financial plan) for the next six years. When the program memoranda have been approved, the tabular presentations are removed and formed into a single document known as the multi-year program and financial plan. This then becomes the current plan for the organization, and it can be changed only by either program change proposals or the next annual program memoranda.

Some Limitations of PPBS

PPBS is not a simple system. Rather, it is complex and difficult. It can render a great deal of assistance to the

intuitive judgment of the decision maker, but it does not represent perfection. As with any man-made system, PPBS contains a number of shortcomings.

In PPBS, programs and activities are arrayed according to broad enterprise goals. This array serves multiple purposes, such as planning and operations. However, the grouping of programs that is good for planning may not be good for operations (McKean and Anshen, 1965, pp. 9-10). This is akin to the argument that while a decentralized organization may be better for originating change, a centralized organization may be better for implementing the change.

The goal-oriented focus of PPBS makes explicit important interdependencies among activities and organizations which are contributing to similar goals. However, it is impossible for a single budgeting system to call attention to all the important interdependencies, and PPBS is no exception (McKean and Anshen, 1965, pp. 10-11). To search for the perfect program structure is fruitless, for it does not exist. One program structure conceals some of the interdependencies that another program structure displays. The choice of program structure and format depends upon criteria established by the decision maker.

This same limitation also applies to the displaying of important trade-offs (McKean and Anshen, 1965, pp. 11-12). A given program structure brings to light only some of the significant trade-offs that are possible. Many other

important trade-offs remain hidden from view.

Program analysis strives for comparability rather than complete accuracy with respect to the costs of alternative courses of action because such accuracy is impossible in a future which is uncertain (Novick, 1968, pp. 7-8). This can mean that the cost information displayed in the multi-year program and financial plan may not reflect the relevant costs of particular activities. Rather, this cost information may reflect only best "guesstimates" which are nevertheless satisfactory for purposes of comparability.

As Smithies points out, some of the benefits of public endeavors are not solely economic and do not lend themselves to measurement in dollar terms (1964, p. 8). For example, vocational training activities not only produce economic benefits which may be measurable, but they also provide intrinsic rewards to society and to the individual by making him a productive member of the community. Thus economic benefits are only part of the benefits derived from public activities. Yet, in its analytic deliberations, PPBS focuses only upon measurable economic benefits.

PPBS requires enormous amounts of data and calculations in comparison with conventional planning and budgeting approaches. More activities must be made explicit in PPBS. A multi-year program and financial plan as well as detailed justifications are necessary. All this means a more complicated, time-consuming, and costly planning and budgeting system. Widespread application of PPBS in the

federal government was initiated almost five years ago. Yet few of the individual agency PPB Systems have progressed to the fully operatinal stage (Harper et al., 1969, pp. 623-632).

The most important conceptual issue in PPBS is the development of the program structure (Fisher, 1966, p. 7). A meaningful array of programs is both goal-oriented and at the same time related to the decision-making process and the organizational units of the enterprise. For instance, a university is typically regarded as having three broad goals: the dissemination of knowledge (instruction), the carrying on of creative activities and research, and the providing of services to the public. Yet the resource inputs required to achieve these three goals are the same, namely faculty members, support personnel, library facilities, general physical facilities, and so forth. To separate these resources into mutually exclusive packages according to each broad enterprise goal may not be feasible. Thus it is a complicated and time-consuming task to develop a meaningful program structure which, in the final analysis, must be a compromise anyway.

Implementation Issues

There are several issues which need to be considered in implementing a PPB System. The man hours required to achieve this implementation are enormous. The federal government's experience with PPBS reveals this enormity (Harper et al.,

1969, pp. 623-632). Any new system requires practices and procedures peculiar to it. These include submission and review procedures. Furthermore, personnel must be trained and/or recruited to develop and operate a PPB System. The supply of individuals with training and experience in PPBS is much less than the demand for them at the present time. Thus internal development of PPBS capabilities must be achieved in the organizational units in order for them to conduct the special analytic studies which are a vital part of PPBS and to examine and evaluate organizational performance.

A second consideration is the difficulty involved in arriving at meaningful and acceptable measures of effectiveness by which to evaluate achievement in each program category and its subdivisions. Concepts such as higher learning, education, research, and instruction are difficult to define, let alone to evaluate, for a university. This means that a single measure of effectiveness is not sufficient. In most cases, several measures will have to be considered, and judgments will have to be made as to which measures are most important. Furthermore, when a PPB System is being developed and implemented for an organization, it is typically very difficult to arrive at final measures of effectiveness immediately. Consequently, proxy measures normally must be used in place of having none at all. This is particularly true with respect to a university because of the nature of its products. Once the PPB System has been designed and put on-line, consideration can be given to developing final

measures of effectiveness.

PPBS, although neutral conceptually, in fact usually brings organizational change and realignments in decision-making power (Carlson, 1969, p. 31). Consequently, PPBS tends to be supported by those who think they have something to gain by it and resisted by those who think they have something to lose by it. This is expected human behavior. Therefore it needs to be considered in implementing a PPB System. Some heed must be paid to the political ramifications that PPBS possesses.

An effective PPB System requires a comprehensive supporting information system (Nickerson, 1968, pp. 1-15). The information system is typically developed after the PPB System has been established because only then can the full spectrum of data requirements be properly ascertained. Once the program structure and the multi-year program and financial plan have been established, the data elements needed to support these components of the system can hopefully be accurately determined. This, then, given an idea of how extensive an information system is required, at least for a first approximation.

Furthermore, an information system is needed to provide more and better data not only for managerial decision making but also for the special analytic studies and for program evaluation. This means, for example, the provision of extensive data on costs, planning factors, benefits, and performance. In the typical university, these data are not

currently being collected (Hamelman, 1970, pp. 37-40). Thus the information requirements of a PPB System can be expected eventually to have a considerable impact upon the existing information systems of many of those universities which embrace PPBS. The impact would involve the overhaul and expansion of these information systems. This is an extremely important point, for without adequate information, analysis is impossible. And without analysis, PPBS is sterile.

CHAPTER V

A PPBS MODEL FOR A COLLEGE WITHIN A PUBLIC UNIVERSITY

Introduction

As the demands placed upon university resources continue to mount, new techniques and tools for improving the allocation and management of these resources must be found. In general, the public has been markedly increasing its expenditures for higher education (Pfeiffer, 1968, p. 79). However, this support has been accompanied by a growing interest in what universities are accomplishing with this educational investment, because the competition for budget dollars is continuously increasing in intensity. One state budget director, addressing a number of financial officers from public universities, presented his view of the changing situation, possibly incorrectly, in the following terms: "Up to now, you've had things pretty much your own way. You've received the funds you asked for, even though you did a poor job of justifying many programs. But, from here in, things are going to be more difficult. You must develop more effective guidelines" (Pfeiffer, 1968, p. 11). No university administrator in the State of Florida would regard the first

part of this statement as containing any truth at all. However, in Florida as well as elsewhere, obtaining funds in the future promises to be more difficult than in the past.

One new tool which may assist a public university in explaining and justifying its wide range of activities is PPBS. With its long-range planning, program focus, and systematic analysis, PPBS may also improve the allocation and management of resources in a public university.

This chapter proposes a PPBS model which is applicable to a college within a public university. For illustration purposes, the model is presented in terms of its application to a college of business administration. Then, the College of Business Administration at the University of Florida is utilized as a case study for the proposed PPBS model. The chapter is divided into the following broad sections: the university environment, a PPBS model for a college, a case study of the proposed PPBS model, program evaluation, and a comparison of the proposed PPBS model with the Florida PPB System.

The University Environment

The environment of a university is complex. Included in it are the overall mission, the goals, the several processes, and the products of an academic organization. In addition, these ingredients include the idea of academic quality and the fact that there is no good market indicator, in a business profit sense, for the performance of a university. Each of

these points is considered in turn.

Broad Mission

The broad mission of a university is to advance learning. The key to human learning is knowledge. In contemporary industrial society, knowledge is a most vital commodity. As the primary center for the generation and dissemination of knowledge, the university is occuping an increasingly important place in the modern world.

Today, knowledge is mandatory for social and technological advancement (Diebold, 1969, pp. 1-3). The university produces, assembles, stores, retrieves, disseminates, and uses knowledge. Furthermore, the university experiments with new methods for disseminating and using knowledge. In practice, the university is also the center for a systems or interdisciplinary use of knowledge. As the world becomes more complex, knowledge will become even more vital. Concurrent with this will be the growing need to assemble knowledge in forms which facilitate the solution of problems and issues. All this is in the purview of the university. Thus, the university has far-reaching responsibilities in its mission to advance learning.

Goals

Within its overall mission, the university is a multiple-goal organization with widely diffused power and a structure which permits subordinate organizational units to exercise a relatively high degree of autonomy (Hamelman, 1970,

pp. 36-37). Even though the typical university is rarely a tightly interrelated whole, it possesses general goals which fit its many subordinate units.

One goal is the development of human skills, both professional and occupational. This involves the instructional endeavors of a university and can be referred to as the creation of human capital. A second goal is the expansion and development of human knowledge. Fundamental, developmental, and applied research and creative activities are involved here. The third goal is community development and service, and these can take many forms. They can range from activities designed to preserve and strengthen the cultural heritage of the country and its way of life to specialized services to industry, business, and the general public.

Processes

There are several processes or functional areas which support the goals of a university. These areas are the primary academic services of instruction, research and creative work, and public or professional service and the general university services of administration and support.

Instruction connotes the dissemination of knowledge through the organized teaching of degree-credit courses at both the undergraduate and graduate levels. This also includes academic advising and counseling as well as other activities, such as the direction of theses and dissertations

and curriculum planning and preparation, which are directly associated with the instruction function.

Research involves creative and scholarly investigation of a fundamental, developmental, or applied nature. This leads to the generation of new knowledge and the application both of new and existing knowledge. It can also result in improving the dissemination and utilization of knowledge as well as the preservation and retrieval of knowledge.

Public service is typically the dissemination of knowledge by means other than organized, degree-credit teaching. It involves activities through which the faculty makes its special skills available to the general public and to special groups. It includes such things as workshops, seminars, symposia, conferences, correspondence instruction, publishing, and unremunerated consulting.

Administration and support is usually composed of academic support services, student services, and general administration services. Academic support services include such things as libraries, museums, computer facilities, teaching resource centers, examination boards, and counseling centers. Student services include health services, clinical services, food facilities, bookstores, housing, financial aid, extra curricular services, and career placement services. General administrative services involve central executive leadership, operation and maintenance of physical facilities, financial management, logistics, personnel services, and auxiliary services.

Academic Output

Generally speaking, each of the three primary academic services in a university produces an output. Different measures must be applied to each of these services. Instruction produces educated persons and trained professional manpower. Proxy measures of this output might be the number of degrees awarded or the number of students completing courses of instruction. The output of research is knowledge. One proxy measure of this might be the number of research projects completed. Public and professional service produces specialized contributions to the public. These contributions might be measured by the number of functions such as workshops and conferences given or the number of people attending these functions. Taken together, these primary academic service products represent the benefits that a university renders to mankind.

Academic Quality

While the concept of quality permeates the entire spectrum of university activities, it is very difficult to define and measure. It can generally be stated that the quality of an academic organization is a function of its faculty, its research capability, its student body, its physical plant and equipment, and the capability of its graduates. What specifically constitutes quality in each of these areas is elusive. Does a faculty with a higher proportion of terminal degrees from elite schools connote

quality? Possibly on a comparative basis. Do publications denote research capability? Would number and size of research grants be another indicator of this capability? Do scholarships and high scores on national aptitude examinations mean a high quality student body? What about the student with work experience and high motivation who for one reason or another does not do as well as other students on this type of national examination? Adequate quantities of space and equipment may be one indication of satisfactory, if not quality, physical facilities and operating equipment. This could include numbers and sizes of classrooms, laboratories, and offices. The capability of graduates might be indicated by their reception by employers in the market place or by estimates of their lifetime incomes discounted back to the present.

Lack of Market Profitability Measure

In the business world, the performance of a commercial enterprise is indicated in the market place and reflected in the profit and loss statement. However, a university is not subject to this type of profit measure because it contributes services. It does not seek to generate a monetary profit (Williams, 1966, p. 12). Consequently, performance evaluation comes from analytical studies of university activities. Since profitability feedback is not available, qualitative and quantitative analyses must be conducted to evaluate how effectively a university is accomplishing its goals.

This is not to say that no market measure exists. On the contrary, how the recruiting market accepts degrees of a particular university or college or the extent of the demand for a book or other publication can provide market feedback and, hence, some measure of performance.

PPBS and a University

Like other enterprises, a university is confronted with the problem of allocating limited resources in order to achieve its goals. Consequently, the concern is to allocate these resources as effectively as possible. Powerful assistance in this realm can be provided by PPBS, because with it decision making flows from comprehensive planning and analysis.

The current enthusiasm in behavioral science literature is participative management along the lines of McGregor's Theory Y or Likert's System 4 (McGregor, 1960, and Likert, 1967). In a university, PPBS calls for participative management through the systems approach to planning.

Each college within a university is multi-disciplined and contributes to the accomplishment of the various university goals. The systems approach of PPBS calls for involving these many disciplines in planning and its inherent analysis. This could be achieved with a college-wide committee structure composed of faculty members from the various academic departments. Since planning in PPBS is a continuous process, such a structure would constitute a

permanent planning vehicle. A committee and appropriate subcommittees could be designated for each program category in the program structure.

Students typically take courses in more than one academic department and probably in more than one college within a university. The program structure and the multi-year program and financial plan take such interdependencies into account because these instruments are goal oriented and, hence, cut across organizational lines.

University activities normally last for a time period of many years (Hamelman, 1970, pp. 37-40). Therefore, to analyze and evaluate these activities in their proper perspective, a multi-year horizon is needed. PPBS provides such a time period in its planning of activities, programming of resources, and budgeting of dollars.

For a number of years now, the harbingers of the notion of social responsibility have been leveling their promouncements at business and industry. Lately, however, the view that social responsibility is a concept that is applicable to all of the major institutionalized segments of modern society has been gaining adherents (Raskin, 1970, pp. 108-110 and Ward, 1969, pp. 1-2). These segments are regarded as business and industry, organized labor, government, and education, particularly higher education. Thus it is felt that the notion of social responsibility can be applied to a university and its community of colleges.

Public universities obtain the bulk of their support

from the government, both federal and state. The demands currently being made on available public resources are enormous and growing rapidly (Pfeiffer, 1968, p. 11). Environmental pollution and the problems of transportation, housing, and the cities have reached a stage of profound public concern (Miller, 1969, p. 6). Tremendous efforts are in the offing to deal with these issues. But public resources are not limitless. Some rationing is necessary. Thus, public universities are faced with the need to show the public precisely what is being accomplished with the resources devoted to public higher education and why support must be continued at a high level and increased in the future. The public, through its elected representatives, is subjecting public investments to close scrutiny (Hamelman, 1970, pp. 37-38). Higher public education is a part of these investments. PPBS, with its output focus and its input-output relationship, can provide a public university with a powerful vehicle for showing what results it is accomplishing and how it is accomplishing them.

Along with the rest of society, higher education today is in the throes of accelerating change (Diebold, 1969). The daily additions to human knowledge are enormous. It is truly an information explosion of far greater magnitude than the population explosion (Diebold, 1969, p. 32). At the same time, the number of years between theoretical conception and successful application is rapidly declining (Diebold, 1969). These phenomena are not of temporary nature. They

are part of a long term historical trend that is almost certain to continue. Accordingly, higher education must be cognizant of and adapt itself to this increasing rate of change and its manifestations in the social and technological environment.

Among other things, this means utilizing the most modern management tools and techniques available for administering an academic enterprise. In many instances, these tools and techniques were originally developed by academicians and applied to business and government. The time has now arrived when it is necessary to apply these modern management methods developed elsewhere to the public university. If society is to derive the fullest possible measure of benefit from a public university, then the physical and financial resources that are available to this university must be employed as effectively as possible. PPBS is one tool that may help to bring this about.

To realize its full potential within a public university, however, PPBS needs not only the support of university administrators but also the support of the agencies in the state which are concerned with public higher education and state budgetary matters. In addition, the support of the state legislature is a necessity. Otherwise, PPBS may never get off the ground.

A PPBS Model for a College

The PPBS model proposed in this section is applicable, in general, to collegiate organizations within a public

university setting. For illustration purposes, a college of business administration is used to present the model.

A collegiate school of business is typically one of many colleges in an academic organization that offer both undergraduate and graduate education. It is, therefore, a part of the total university environment and shares in the broad mission, goals, and processes of the university. A college of business administration is a professional school which concentrates its curriculum in business disciplines such as accounting, economics, finance, insurance, international business, management, marketing, operations research, real estate, and transportation. Furthermore, there normally is a general core curriculum composed of the humanities, the social sciences, and other fundamental subject areas which have been thought necessary in educating and training prospective business leaders.

Since it is an organization within a larger academic organization, a collegiate school of business is confronted with the same resource allocation and management problems that confront a university, albeit on a smaller scale. Consequently, just as PPBS may provide assistance to a university that is faced with these problems, it may also assist a business school which is in the same predicament.

Goals of a College of Business Administration

A college of business administration within a university typically has four major goals. In general terms, these goals can be stated as follows (University of Minnesota,

1970; University of Oregon, 1970; University of Nebraska, 1970; University of Oklahoma, 1968; University of Texas, 1970; The Pennsylvania State University, 1970; and University of Florida, March 1, 1969):

1. To prepare and develop people for positions of business management and leadership.
2. To prepare and develop teachers of the specific disciplines of business administration.
3. To advance the boundaries and application of knowledge of business and its environment.
4. To serve the general public by disseminating knowledge to it and to special groups.

Preparation and development of administrators

One of the primary aims of a collegiate school of business is to prepare and develop individuals for careers in the administration of business, social, and governmental organizations. Although the ways in which this is accomplished vary from one university to another, there are significant features which appear to be common. Typically, opportunities for learning and development are provided to the individual. In addition, the school labors to develop the fundamental skills and knowledge of administration in each student. The treatment is both broad and specific and includes material on the general principles and concepts, the basic theories, and the functional techniques of business administration. Further, the student is exposed to the literature on

administration. Emphasis is placed upon the student examining the ideas and precepts to which he is exposed so that he may arrive at his own conclusions. In recent years, there has been a growing stress on instruction in the social, political, and institutional environment in which business must operate. This emphasis is presented in the context of the responsibility that businessmen and industrialists have to contemporary society.

Preparation and development of teachers

Many colleges of business administration also strive to prepare and develop teachers of administration. The methods for accomplishing this are basically the same as those that are utilized to prepare and develop administrators. However, in the case of teachers, an advanced comprehensive education and training in several of the specific disciplines of business administration is involved. The treatment has both breadth and depth. In addition, it may involve exposure to the techniques involved in teaching business administration subjects. This usually includes acquaintance with different instructional methods, such as the lecture, the seminar, the group presentation and discussion, and the case method. The preparation and development of teachers also includes the designing and carrying out of a research study or dissertation. The dissertation presents evidence of scholarly research and constitutes a contribution to human knowledge.

Advancement of knowledge

In addition to educating and training people to be administrators or teachers, colleges of business administration also conduct research in order to contribute to human knowledge in business administration. With conditions continuously changing, research in the many disciplines of business administration is needed to gain knowledge and understanding of administration and administrative problems and to refine the theories and concepts of these disciplines. This is particularly important because administration involves accomplishing things through organizations of people, and knowledge and understanding in this area are limited.

Public service

Collegiate business schools also carry on activities for the purpose of disseminating knowledge and making the special talents and expertise on their faculty members available to the general public, the various levels of government, and business and industry. These service activities include lecturing, consulting, publishing (e.g., books, monographs, bulletins, and scholarly journal articles), non-credit continuing education and training, workshops, seminars, conferences and symposia. Moreover, public service of this type results in the transfer of technology and problem-solving knowhow to the community at large.

An Input-Output Model

A possible input-output model for a college of business administration is displayed in Figure 2. It shows how the resources and students of a collegiate business school are combined to produce administrators, teachers of administration, research findings, and specialized services to the community. This model could easily be applied to other colleges which develop human capital, produce research findings and engage in public service.

Alternative Organizational Structures of a College of Business Administration

Colleges of business administration in the United States are organized at different educational levels. Some, like Harvard, function only at the graduate level and offer master's and doctoral studies (Harvard University, 1969). Others, such as Dartmouth, offer only a master's degree (Dartmouth College, 1966). Still others are organized into two separate and distinct schools on the same campus, with one school for undergraduate studies in business and the other school for graduate studies (the University of Virginia, 1970). Many collegiate schools of business are organized to offer both undergraduate and graduate education in business administration.

At the undergraduate level, two distinct patterns of study emerge. Some colleges of business, such as those at Ohio University, the Pennsylvania State University, and the University of Georgia, admit students as freshmen and enroll them for four years (Ohio University, 1970; the Pennsylvania

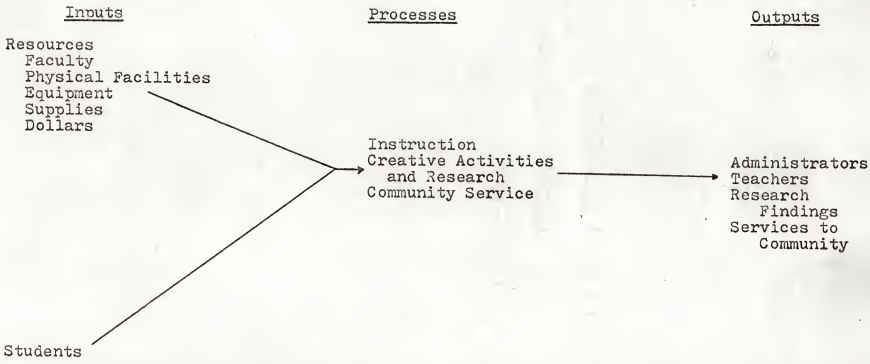

FIGURE 2

AN INPUT-OUTPUT MODEL FOR A COLLEGE OF BUSINESS ADMINISTRATION

state University, 1970; and University of Georgia, 1968). Other collegiate business schools, such as the ones at the University of Oregon and the University of Florida, admit students from a college of general studies within the university and enroll them for their junior and senior years (University of Oregon, 1970, and University of Florida, March 1, 1969).

There are also many forms which the internal organizational structure of colleges and schools of business administration may take. The following discussion covers an illustrative, not an exclusive, listing. It is interesting to note that the American Association of Collegiate Schools of Business has not yet classified and published this type of information.*

Some business colleges include the major functional areas of business, with the exception of accounting and perhaps economics, in one academic department. For example, Virginia Polytechnic Institute and State University has its collegiate business school structured into the following three academic departments (Virginia Polytechnic Institute and State University, 1970):

Accounting

Business Administration

Economics

---

*Information obtained from A.A.C.S.B. letter to the author, November 13, 1970.

Illinois State University's collegiate business school also has three academic departments (Illinois State University, 1970):

Accounting
Business Administration
Business Education

The business school at the University of Iowa, on the other hand, has four academic departments (the University of Iowa, 1970):

Accounting
Business Administration
Business Education
Economics

There are those colleges of business administration which break the functional areas of business out to some degree and accord them departmental status. One example is the University of Minnesota's business school (University of Minnesota, 1970):

Accounting
Finance and Insurance
Industrial Relations
Management and Transportation
Marketing and Business Law
Management Sciences

Another example is the business college at the University of Texas in Austin (the University of Texas at Austin, 1970):

Accounting

Finance, Insurance and Real Estate

General Business

Management and Transportation

Marketing and International Business

And the Pennsylvania State University has organized its collegiate business school in a similar manner (the Pennsylvania State University, 1970):

Accounting and Quantitative Business Analysis

Business Logistics

Finance

Insurance and Real Estate

Management

Marketing

A number of colleges of business administration have academic departments for economics in addition to departments for many of the major functional areas of business. For instance, at the University of Oklahoma, the collegiate business school is structured into six academic departments (University of Oklahoma, 1968):

Accounting

Administrative Services

Economics

Finance

Management

Marketing

At the University of Georgia, the busines college has seven academic departments (University of Georgia, 1968):

Accounting
Banking and Finance
Economics
General Business
Management
Marketing
Real Estate and Insurance

The College of Business Administration at the University of Florida is organized into six academic departments on a similar basis (University of Florida, March 1, 1969):

Accounting
Economics
Finance and Insurance
Management and Business Law
Marketing
Real Estate and Urban Land Studies

Other business colleges include distinct schools and divisions in addition to academic departments. One example is the College of Administrative Science at the Ohio State University (the Ohio State University, 1970):

School of Social Work
Academic Faculties:
    Accounting
    Finance
    Management Science
    Marketing
Division of Public Administration

The business college at Ohio University is organized in a similar manner (Ohio University, 1970):

School of Accounting

Departments of:

Business Administration

Business and Industrial Communication

Business Law

Economic Education

Economics

Finance

Management and Organization Behavior

Marketing

Quantitative Methods

Some collegiate business schools do not have subordinate departmental organizations. Below the college or school level, there is no formally delineated organizational structure. Examples of this are the business schools at Harvard University and Dartmouth College (Harvard University, 1969, and Dartmouth College, 1966).

Program Structure

In a college of business administration, a program structure is a classification of functional areas on the basis of the goals or broad aspirations of the college. Each college goal is served by a program category comprised of functions of a particular type. These functions are the specific things that a collegiate business school does to

accomplish its objectives.

One of the principal features of PPBS is the explicit consideration of alternatives. This consideration applies to alternative program structures for accomplishing the goals of a college of business administration. Four program structures for a collegiate business school are presented on the following pages. Only the program category and subcategory levels of the structures are displayed. Each alternative is discussed and examined in turn.

Four program structures

The first program structure is presented in Figure 3. This structure has three primary programs: instruction, research, and public service. Instruction and research describe processes rather than goals. Public service can be viewed as an end. Thus this portion of the structure is not directly goal oriented. Furthermore, within instruction, the breakdown produces cost distortions because joint support costs for the entire program can be separated only arbitrarily on the basis of lower, upper, and graduate. This breakdown also tends to be input oriented because it is concerned with the resources needed by level rather than with the output realized for the program. In a general sense, the research substructure is application oriented, and this may not necessarily reflect the research endeavors of a college of business administration in a university environment. This program structure also contains three support programs:

Instruction

- Lower
- Upper
- Graduate

Research

- Basic
- State Needs
- National Goals

Public Service

- State Needs
- Other Needs

Libraries

- General
- Special

Student Support

- Counseling
- Financial Aid
- Other Services

General Administration

- Central Administration
- Support Activities

FIGURE 3

PROGRAM STRUCTURE ONE

libraries, student support, and general administration. A program separation along these lines tends to distort the costs of both the primary programs and the overall endeavors to support them. Also, a library is an organization rather than a goal-oriented program.

Figure 4 displays a second program structure. This contains the same three primary programs. However, the substructure in each program in program structure two differs from its counterpart in the first structure. Instruction and research are again subject to the liability of being processes. A more serious failing is inherent in the substructure. Each program subcategory (e.g., accounting, economics, etc) is equivalent to a separate organization or department in a typical college of business administration. This means that the PPBS principle of cutting across organizational lines would be violated. Under this program structure the focus would be on the academic departments in a business college rather than on the objectives to be achieved and the contributions to be made toward this achievement by each organizational unit. Under this alternative, general support is consolidated into one program, thus eliminating one of the sources of weakness in the first program structure.

Program structure three is presented in Figure 5. This structure has four primary programs which are goal oriented.

Instruction

- Accounting
- Economics
- Finance
- Insurance
- International Business
- Management
- Marketing
- Quantitative Methods
- Real Estate
- General Business

Research

- Accounting
- Economics
- Etc.

Public Service

- Accounting
- Economics
- Etc.

General Support

- Academic
- Non-Academic

FIGURE 4

PROGRAM STRUCTURE TWO

Development of Administrators

Degree Programs

Development of Teachers

Degree Programs

Creation of Knowledge

Organized
Individual

Community Service

Special Education Services
Public Information
Individual Service

General Support

Academic
Student Services
General Administration

FIGURE 5

PROGRAM STRUCTURE THREE

They show what a collegiate business school is endeavoring to accomplish, namely the development of administrators and teachers, the creation of knowledge, and the rendering of service to the general public. The degree programs and other means which contribute to the accomplishment of these goals form the substructure in this alternative. This structure also has one overall support program, and again this is an advantage.

The fourth program structure is displayed in Figure 6. Like program structure one, this structure possesses three primary programs and three support programs. Two of these primary programs, instruction and research and creative activity, are not goal oriented. Moreover, the separation of support into three programs results in distortions in both perspective and cost allocations. Program structure four, however, has a different substructure in its primary programs than program structure one. Instruction is subdivided on the basis of the time when it is offered during the year. Under research, the substructure is in terms of the type of research being undertaken. Public service is goal oriented, and its substructure shows the groups being served. This structure also possesses the disadvantages associated with multiple support programs.

A proposed program structure

A program structure that is based upon the general goals of a college of business administration is proposed

Instruction

- Regular
- Summer Session

Research and Creative Activity

- Basic
- Applied

Public Service

- Campus
- Community

Library

- Knowledge Storage and Retrieval
- Other Activities

Student Services

- Counseling
- Financial Assistance
- Other Services

General Support

- Academic
- General Administration

FIGURE 6

PROGRAM STRUCTURE FOUR

here. This structure is presented in Figure 7 and has four primary programs which are goal oriented and one general support program. Within each primary program, the first level of the substructure (e.g., Doctor of Philosophy in Economics, organized, and special education services) is known as the program subcategory level, and it displays the means by which the college is accomplishing its goals. The second level of the substructure (e.g., Management, externally sponsored, and non-credit correspondence study) is called the program element level, and it displays the components which make up the program subcategory level.

One of the reasons for grouping program elements together into subcategories and programs is to facilitate the analytic comparison of alternative ways to accomplish organizational goals. A program structure, thus, provides a conceptual framework for this type of analysis. Program elements which contribute to the same end can be considered substitutes for one another and are grouped together in the same subcategory. Program subcategories are also viewed in this manner. Thus the Bachelor of Science in Business Administration degree program and the Master of Business Administration degree program are alternative ways to accomplish the development of administrators. Program elements and subcategories which on each respective level are substitutes can be examined from a cost-benefit viewpoint for the purpose of being traded off against one another. For example, organized knowledge creation and individual

Development of Administrators

Bachelor of Science in Business Administration
- Accounting
- Banking and Finance
- Business Education
- Data Processing
- Economics
- Foreign Trade and Transportation
- Insurance
- Management
- Marketing
- Quantitative Methods
- Real Estate
- Secretarial Administration
- General Business

Bachelor of Advanced Accountancy

Master of Business Administration
- Accounting
- Economics
- Finance and Insurance
- Foreign Trade
- Management
- Marketing
- Operations Research
- Real Estate

Master of Arts in Business Administration
- Accounting
- Economics
- Finance and Insurance
- Foreign Trade
- Hospital Administration
- Management
- Marketing
- Operations Research
- Real Estate

Development of Teachers

Doctor of Philosophy in Economics

Doctor of Philosophy in Economics and Business Administration
- Finance and Insurance
- Management
- Marketing
- Operations Research
- Real Estate

FIGURE 7

A PROPOSED PROGRAM STRUCTURE FOR A

COLLEGE OF BUSINESS ADMINISTRATION

Creation of Knowledge

- Organized
  - Externally Sponsored
  - Internally Sponsored
- Individual
  - Externally Sponsored
  - Internally Sponsored

Community Service

- Special Education Services
  - Non-Credit Correspondence Study
  - Special Activities
- Public Information Services
  - Publications
  - Conferences, Workshops, etc.
- Individual Service
  - Consulting
  - Advising

General Support

- Academic Support
  - Counseling
  - Information Services
- Student Services
  - Financial Assistance
  - Other Services
- General Administration
  - Executive
  - Financial
  - Auxiliary

FIGURE 7

(continued)

knowledge creation can be traded off against each other. The same is true of externally sponsored knowledge creation and internally sponsored knowledge creation.

Resource inputs, such as personnel, equipment, physical facilities, and dollars, are designated for program elements. In the proposed program structure, this means that resources are allocated for the purposes of the specific majors within each degree program, the externally and internally sponsored creation of knowledge, the six program elements within community service, and the seven program elements within general support. Program elements, thus, comprise the operational level of this PPB System.

In a college of business administration within a university it is not always possible to forecast specifically the output of every process. For example, the output of research, is very difficult to predict with any confidence. The same can be said of some of the functions involved in community service. Consequently, secondary measures, such as those dealing with inputs, are utilized, since these measures are better than no measures at all.

The general support program in the proposed program structure contains items and activities which are not ends in themselves but rather which support the four primary programs in the structure. The reason for placing program elements in a general support program is that they typically involve joint costs which cannot be allocated to primary program elements in any reasonable manner. In a college of business

administration, nonallocable costs include the Office of the Dean, general academic support and student services in the college, and the administrative overhead of each academic department.

The Model in Operation

The multi-year program and financial plan for a college of business administration utilizes a future planning horizon of ten years. For a college in the south, planning on the basis of a decade serves the decennial requirement for reaccreditation by the Southern Association of Colleges and Schools. It is possible, however, to utilize a shorter future time horizon (e.g., five or six years as various governments throughout the country do) for programming and budgeting purposes. This time horizon is comparable to the one being utilized by all agencies of the State of Florida.

The primary basis for the multi-year program and financial plan that is developed in this section is the program structure which is proposed for a college of business administration and presented in Figure 7.

The multi-year program and financial plan of an organization serves two major purposes, one internal and one external. Internally, the plan presents a picture of total program costs on a time-phased basis. Externally, the plan provides a documentation of organizational programs and activities and explains and justifies these in a manner which allows pertinent government agencies and the general

public to see the relationship between funding and accomplishment in an academic organization such as a college of business administration.

A sample of the summary level of a multi-year program and financial plan for a college of business administration is presented in Figure 8. The proposed program structure is detailed in the stub column of the illustration so that the data can be displayed in terms of college programs and their component parts. Actual data for one year of history are provided together with estimates for the current operating year in order to present a basis for and continuity with the projections which are required for the years 1971-72 through 1975-76.

A total projection column is provided on the right hand side of the illustration. Its purpose is to display aggregate multi-year projected resource and dollar requirements by program and activity. In this way, the decision maker can view the future annual costs and resource requirements of a program and an activity in the context of their respective total costs over the forward programming and budgeting horizon.

Figure 8 represents only a sample of a possible multi-year program and financial plan format. However, many other arrangements could conceivably be utilized. For example, data from additional historical years could be included. In addition, summary presentations of the data in terms of organizational subunits and/or traditional control

Program Structure	Actual 1969-70	Estimate 1970-71	Projection 1971-72	1972-73	1973-74	1974-75	1975-76	Total
Development of Administrators								
Bachelor of Science in Business Administration								
Accounting								
Banking and Finance								
Business Education								
Data Processing								
Economics								
Foreign Trade and Transportation								
Insurance								
Management								
Marketing								
Quantitative Methods								
Real Estate								
Secretarial Administration								
General Business								
Bachelor of Advanced Accountancy								
Master of Business Administration								
Accounting								
Economics								
Finance and Insurance								
Foreign Trade								
Management								
Marketing								
Operations Research								
Real Estate								

Note: This exhibit represents only a sample of the summary level of a possible multi-year program and financial plan format.

FIGURE 8

A MULTI-YEAR PROGRAM AND FINANCIAL PLAN FOR A COLLEGE OF BUSINESS ADMINISTRATION

Program Structure	Actual 1969-70	Estimate 1970-71	1971-72	Projection- 1972-73	1973-74	1974-75	1975-76	Total
Master of Arts in Business Administration								
Accounting								
Economics								
Finance and Insurance								
Foreign Trade								
Hospital Administration								
Management								
Marketing								
Operations Research								
Real Estate								
Program Total								
Development of Teachers								
Doctor of Philosophy in Economics								
Doctor of Philosophy in Economics and Business Administration								
Finance and Insurance								
Management								
Marketing								
Operations Research								
Real Estate								
Program Total								

Note: This exhibit represents only a sample of the summary level of a possible multi-year program and financial plan format.

FIGURE 8

(Continued)

Program Structure	Actual 1969-70	Estimate 1970-71	1971-72	Projection- 1972-73	1973-74	1974-75	1975-76	Total
Creation of Knowledge								
Organized								
Externally Sponsored								
Internally Sponsored								
Individual								
Externally Sponsored								
Internally Sponsored								
Program Total								
Community Service								
Special Education								
Services								
Non-Credit								
Correspondence Study								
Special Activities								
Public Information								
Services								
Publications								
Conferences								
Workshops, Etc.								
Individual Service								
Consulting								
Auditing								
Program Total								

Note: This exhibit represents only a sample of the summary level of a possible multi-year program and financial plan format.

FIGURE 8

(Continued)

Program Structure	Actual 1969-70	Estimate 1970-71	1971-72	Projection- 1972-73	1973-74	1974-75	1975-76	Total
General Support								
Academic Support								
Counseling								
Information Services								
Student Services								
Financial Assistance								
Other Services								
General Administration								
Executive								
Financial								
Auxiliary								
Program Total								
Grand Total, All Programs								

Note: This exhibit represents only a sample of the summary level of a possible multi-year program and financial plan format.

FIGURE 8

(Continued)

classifications (e.g., objects of expenditure) could be provided. While the program structure constitutes the primary basis upon which the multi-year program and financial plan is developed, other bases can be utilized to supplement the program structure in its role in this realm.

The program structure proposed earlier requires five program memoranda, one for each primary program and one for the general support program. When consolidated, these memoranda present the multi-year plan that is recommended by the college together with a discussion of the budget implications of the plan.

Naturally, the information that is presented in the five program memoranda differs from one program to another depending upon the activities undertaken and the resources involved. However, the types of information which are required for display are essentially similar, at least for the primary programs.

In the program memoranda for both the development of administrators and the development of teachers of business administration programs, the types of information that are needed normally include the following:

1. The operational objectives of the organization.
2. Current activities and past achievements.
3. The number of degrees granted in prior years.
4. Resource requirements (e.g., faculty, support personnel, equipment, supplies, space, and other items) which are required to continue on-going activities without improvement.

5. Improvements recommended and resultant resource requirements. Included here might be proposals to reduce average section size, lower average per week contact hours for faculty, and similar things.
6. New activities recommended and resultant resource requirements. For instance, these might include new courses, a new degree, or the establishment of a new academic department.
7. Program quality.

The program memoranda for both the creation of knowledge and community service programs usually include the same types of information as are listed above with the exception of the number of degrees granted. In addition, for the creation of knowledge program, past achievements include research findings and their application. Past achievements for the community service program include the number of people taught in a particular course, the size of audience achieved for a workshop or symposium, and the number of people served through public information and individual service activities. These achievements can represent outputs.

A program memorandum is also written for the general support program. The types of information that are required in this memorandum include the following:

1. The role of general support activities in achieving the operating objectives of the four primary programs.

2. The resources that are required to maintain a satisfactory support capability.
3. Future requirements for resources to improve the support capability.

Finally, the essential information in each program memorandum is displayed in concise form in a summary section of the memoranda. This section normally includes manpower and dollar requests aggregated by program and summed for the college.

In order to operate a PPB System in a college of business administration, a cycle of planning, programming, and budgeting is required. This cycle functions as depicted in Figure 9. Program planning and analysis, supported by an information system, are carried out to determine program objectives and the best means of achieving them. The results of the planning and analysis are then used to prepare program memoranda. These results are translated into program plans and into recommended resource and budget allocations for each unit and the college for the next five years. These program memoranda are consolidated into a college presentation. Both these program memoranda and the multi-year program and financial plan are submitted to higher authority for funding. When funding is received, the first year of the multi-year program and financial plan constitutes the basis for the operating budget for the college. Modifications can be introduced only by program change proposals which change both the multi-year program and financial plan and the

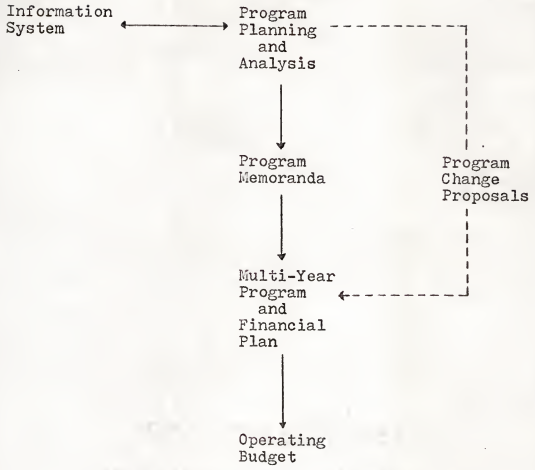

FIGURE 9

OPERATING THE PPB SYSTEM FOR A

COLLEGE OF BUSINESS ADMINISTRATION

current operating budget.

In addition to exerting a profound impact upon the planning of activities and the programming and budgeting of resources within the college, PPBS affects the administration of daily operations in two significant ways. First, PPBS makes explicit the various interrelationships and interdependencies among the subordinate organizational units in the college. Each unit makes contributions to the goals of the college, and PPBS reveals the nature and relative magnitude of the contributions. Second, PPBS relates resources to achievements and, thus, shows what is being produced in addition to displaying what is purchased.

PPBS features an annual budgeting cycle. Accordingly, when public universities and their constituent colleges decide to utilize the PPBS approach, they must adopt an annual timetable for their PPB System. Figure 10 presents a timetable for an annual planning, programming, and budgeting cycle in a college of business administration. Planning and analysis may be carried on all year round in general. However, the specific planning and analysis that is related to the upcoming submissions of plans and budget requests is viewed as occurring over a six-month period. The preparation and submission of documentation by subordinate units takes place over a three-month period and can commence during the final stages of the planning and analysis phase. The Dean then consolidates and reviews subordinate unit plans and budget requests over the next two months and has an

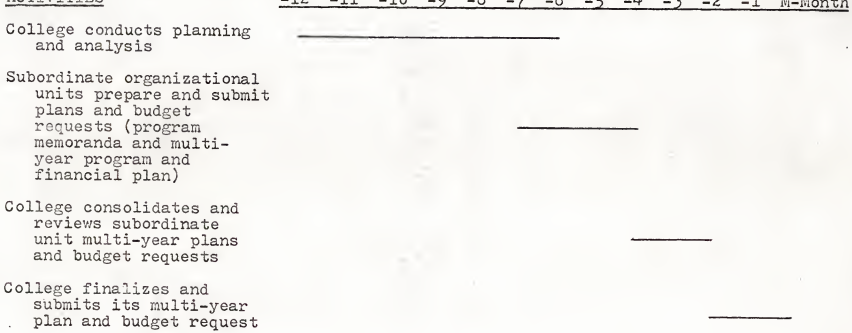
ACTIVITIES
Time
-12 -11 -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 M-Month
College conducts planning and analysis
Subordinate organizational units prepare and submit plans and budget requests (program memoranda and multi-year program and financial plan)
College consolidates and reviews subordinate unit multi-year plans and budget requests
College finalizes and submits its multi-year plan and budget request

FIGURE 10

PLANNING-PROGRAMMING-BUDGETING CYCLE FOR A COLLEGE OF BUSINESS ADMINISTRATION

additional two months to finalize college plans and the college budget request prior to submitting them to university administrators at the directed time (referred to in Figure 10 as M-Month).

The College of Business Administration at the University of Florida: A Case Study of the Proposed PPBS Model

The PPBS design which was developed in the previous section represents a general model that can be utilized by colleges of business administration which function within the decision-making environment of a public university. Since no two colleges of business administration are identical, some modification in the model may be necessary in order to tailor it to the particular circumstances of an individual collegiate school of business.

The five major programs which are delineated in the proposed program structure are applicable to most colleges of business administration. The exception to this is the development of teachers porgram which is normally accomplished at the doctoral level. Thus those business colleges which do not offer the Doctor of Philosophy or the Doctor of Business Administration degrees may not be concerned with this particular program. Furthermore, the substructures that are specified within the major programs in the proposed program structure may not be entirely applicable in every case. However, all this does not detract from the proposed PPBS model but serves to emphasize its inherent flexibility.

The College of Business Administration at the University of Florida

At the University of Florida, the study of Business Administration is formally organized as a separate degree-granting entity which is officially known as the College of Business Administration. Today, the College is composed of six academic departments, a research bureau which includes a computing laboratory, a management center for continuing education, and a business associates organization. An organization chart of the College is presented in Figure 11.

The College of Business Administration at the University of Florida has come to have four broad goals. These are (University of Florida, March 1, 1969, p. 201):

1. To develop administrators for business, government, and the professions.
2. To stimulate and develop an interest in community service and social responsibility.
3. To encourage research and creative inquiry in the spheres of business and administration.
4. To develop teachers of economics and the disciplines of business administration.

In recent years there have been certain important trends which have been exerting a profound impact on colleges of business administration throughout the country. For instance, there has been a great increase in the importance of the administrative function as business enterprises have grown substantially in size. One reason for this increasing importance has been the complex organizational problems that

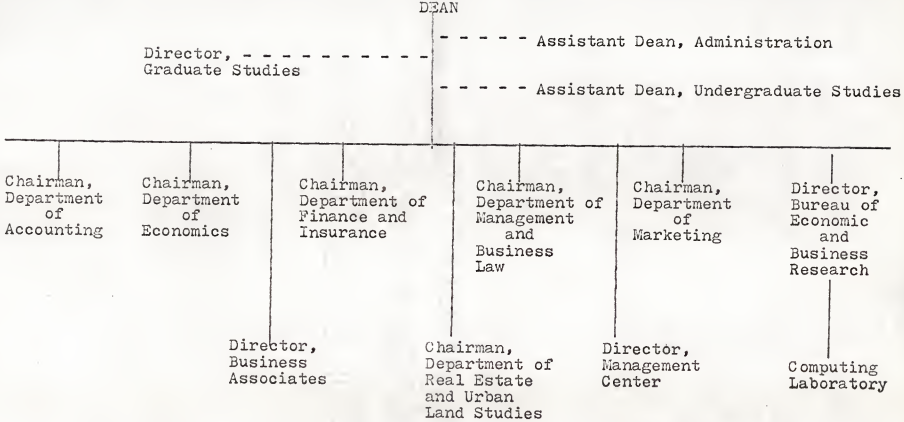
DEAN
Director, Graduate Studies
Assistant Dean, Administration
Assistant Dean, Undergraduate Studies
Chairman, Department of Accounting
Chairman, Department of Economics
Director, Business Associates
Chairman, Department of Finance and Insurance
Chairman, Department of Real Estate and Urban Land Studies
Chairman, Department of Management and Business Law
Director, Management Center
Chairman, Department of Marketing
Director, Bureau of Economic and Business Research
Computing Laboratory

FIGURE 11

ORGANIZATION OF THE COLLEGE OF BUSINESS ADMINISTRATION

AT THE UNIVERSITY OF FLORIDA

have accompanied the growth of the modern business enterprise. Moreover, this growth has been occurring within a technological atmosphere of accelerating change and a knowledge atmosphere of explosive expansion (Diebold, 1969, pp. 7-35). Related to these developments have been significant increases in the use of staffs of professionals (e.g., in planning and analysis) within many large and medium-size business firms (Steiner, 1969, pp. 117-125).

Because of these trends, both undergraduate and graduate programs in the College of Business Administration at the University of Florida are designed to impart a general knowledge and understanding of administrative principles and business practices. The curriculum emphasizes the development of fundamental skills and the acquisition of broad knowledge in the functional areas of business and in the administration of organizations. This education includes the study of the principles of management, the history and development of management thought, the behavioral approaches to managing organizations, the analytical and quantitative approaches to organizational decision making, and the role of business enterprises in present-day society. This last item is particularly important because of the social and political environment in which business and industry must function and the problems that result.

A variety of teaching methods are utilized to serve the educational objectives of the College. The lecture, discussion group, and the seminar are used extensively at

both the undergraduate and graduate levels. In addition, the case method of study is utilized to develop skills in problem analysis and decision making and to develop a capacity for sound judgment.

At present, the College awards the following five degrees:

1. Bachelor of Science in Business Administration (B.S.B.A.)
2. Bachelor of Advanced Accountancy (B.A.A.)
3. Master of Arts (M.A.)
4. Master of Business Administration (M.B.A.)
5. Doctor of Philosophy (Ph.D.).

The educational activities which lead to the first four degrees serve the goal of preparing and developing people for careers in business administration and leadership. The goal of preparing and developing teachers of business administration is accomplished primarily through the activities which lead to the Doctor of Philosophy degree. At the doctoral level, advanced education is offered to individuals who wish to engage in careers in the teaching of administration and in research.

Within the College of Business Administration there is a Bureau of Economic and Business Research. This Bureau serves two major purposes (University of Florida, March 1, 1969, p. 201). One is to expand human knowledge in economics and business, particularly with respect to Florida and the southeastern United States. The second major purpose is to provide a means for the faculty of the College to engage in

organized research and to provide research training for graduate students. The results of this research are published in books, monographs, project reports, journal articles, and leaflets.

In addition, the Bureau acts in advisory and consultant capacities to business groups and to various governmental and civic organizations (University of Florida, March 1, 1969, p. 114). In this way, the Bureau provides service to the general public and to special groups.

The Bureau also oversees the Computing Laboratory in the College. This laboratory supports the research program of the Bureau and provides a capability for computer programming instruction and management games in support of the instructional activities of the College.

Also included in the College of Business Administration is a Business Associates organization. The purpose of the Business Associates organization is to maintain a relationship between the business community and the College that permits an expeditious flow of knowledge and understanding. This is particularly important because both the College and the business community function in a climate of accelerating change, one result of which is a virtually unquenchable thirst for knowledge. Furthermore, the Business Associates organization provides a vehicle for enlisting the aid of business executives and leaders in the educational process within the College.

Another subordinate organizational unit within the

College of Business Administration is the Management Center. This Center oversees the continuing education activities of the College and serves as a point of contact where businessmen can receive assistance in solving problems related to executive development and specialized employee training, can get external expertise for needed research, and can obtain specialized consulting help. The Center provides management development activities for middle and top management to expand the capabilities and horizons of management personnel. The activities of the Center also include non-resident credit courses of instruction and both credit and non-credit correspondence study.

In light of its four broad goals, the College of Business Administration at the University of Florida appears to fit quite well with the proposed program structure. Each goal is approximately parallel to one of the primary programs in the proposed program structure.

The reader may recall that the five programs in this structure are:

1. Development of Administrators
2. Development of Teachers
3. Creation of Knowledge
4. Community Service
5. General Support.

The College goal of developing administrators for business, government, and the professions corresponds to the Development of Administrators program. To accomplish this

goal, the College conducts degree programs on the campus of the University.

Matching the Creation of Knowledge program is the College goal of encouraging research and creative inquiry in the spheres of business administration. Both organized research and individual research are carried on by members of the College. Some of this research is sponsored by federal agencies and other organizations, and some of the research is sponsored internally.

The College goal of stimulating and developing an interest in community service and social responsibility is a counterpart to the Community Service program. Organizations such as the Management Center and Business Associates within the College provide continuing education services and public information services to the general public and to special groups. In addition, many individual members of the College provide consulting and advising services to the community and to public and private organizations.

Similarity to the Development of Teachers program is provided by the College goal of developing teachers of economics and the disciplines of business administration. This is accomplished at the doctoral level. Furthermore, this involves research of a contributory nature on the part of the student.

The College provides academic support, student services, and general administrative services to support the activities which serve the broad goals of the College. This

support and these services match the activities which constitute the General Support program. Thus the College has an overall function which corresponds to the General Support program.

As stated in the previous chapter, three of the criteria for a PPBS program structure are goal orientation, feasibility, and the capability for trade-off analysis. In matching the proposed program structure to the College of Business Administration, all three of these criteria are met.

The goals of the College correspond to the primary programs in the proposed program structure. Hence, the goal orientation criterion is satisfied.

The criterion of feasibility is met also. One difficulty might arise in distinguishing between the processes that comprise the development of administrators program and those that constitute the development of teachers program. However, this difficulty may be overcome by tying the development of teachers program to advanced graduates and doctoral level degree programs.

The development of administrators program is accomplished in the B.S.B.A., B.A.A., M.B.A., and M.A. degrees and may be tied to all courses numbered below the 700 level.

Florida State Program Structure

One other factor must be considered in applying the proposed program structure to the College of Business Administration at the University of Florida. The State government of Florida is in the process of implementing a

PPBS approach to its planning and budgeting efforts for all activities in the executive branch. This involves the entire spectrum of state supported and assisted education including higher education. Consequently, a PPBS program structure for the College of Business Administration must fit into the program structure for higher education in Florida.

It should be made explicit here that the proposed PPBS model is different than the Florida PPB System. The former has been designed for college level decision making and resource allocations, while the latter is designed to operate at the university and state levels. As a result, the Florida PPB System places colleges of business administration in the discipline area of Business and Management and provides no further meaningful detail within this. The proposed PPBS model provides this detail. Figure 12 reveals the relationship of the proposed PPBS model and the Florida PPB System.

Essentially, the Development of Administrators program and the Development of Teachers program can be crosswalked into the instruction program category in the state program structure. Both programs in the proposed program structure are comprised of degree programs in the sphere of Business and Management, and it may be possible to detail these by level, if required, on the basis of course numbers and the resultant data for full-time equivalent students. In addition, the Development of Teachers program involves research in the sphere of Scholarly Enrichment. The Creation

Florida Program Structure Instruction	Development of Administrators	Development of Teachers	Creation of Knowledge	Community Service	General Support
Agriculture and Natural Resources					
Architecture and Environmental Design					
Area Studies					
Biological Sciences					
Business and Management	x	x			
Communications					
Computer and Information Sciences					
Education					
Engineering					
Fine and Applied Arts					
Foreign Languages					
Health Professions					
Home Economics					
Law					
Letters					
Library Science					
Mathematics					
Military Sciences					
Physical Sciences					
Psychology					
Public Affairs and Services					
Social Sciences					
Theology					
Interdisciplinary Studies					

FIGURE 12

MATRIX OF THE STATE OF FLORIDA PROGRAM STRUCTURE

AND THE PROPOSED PROGRAM STRUCTURE

Florida Program Structure	Development of Administrators	Development of Teachers	Creation of Knowledge	Community Service	General Support
Creative Activity and Research					
Research for Scholarly Enrichment		x	x		
Research to Meet State Objectives			x		
Research to Meet National Objectives			x		
Public Services					
Business, Agriculture, and Consumer Services				x	
Crime Prevention and Control					
Education					
Health					
Manpower and Employment					
Natural Resources and Environmental Studies					
Recreation and Culture					
Social and Rehabilitative Services					
Transportation					
Governmental Direction and Support				x	

FIGURE 12

(Continued)

Florida Program Structure	Development of Administrators	Development of Teachers	Creation of Knowledge	Community Service	General Support
Instructional and Research Support					
Libraries/Media Centers					
Exhibition Facilities					
Radio/TV Stations					
Laboratory Schools					
Teaching Hospitals					
Farms, Dairies, and Regulated Agricultural Units					
Student Services					
Academic-Related Services					x
Guidance Services					x
Financial Aid and Job Placement					x
Extra-Curricular Activities					x
Health					
Residential					
Stores and Sales					
Intercollegiate Athletics					

FIGURE 12

(Continued)

Florida Program Structure State Direction	Development of Administrators	Development of Teachers	Creation of Knowledge	Community Service	General Support
Policy Execution					
Board of Regents					
Junior College Advisory Council					
Comprehensive Program and Budget Planning					
Program Development, Allocation, and Coordination					
Research and Statistical Analysis					
Program Evaluation					
Federal Grant and Contract Projects Administration					
Special Services to Institutions					
Institutional Administration					x

FIGURE 12
(Continued)

of Knowledge program in the proposed program structure corresponds to the Creative Activity and Research program category in the state program structure. The College has research efforts in the spheres of Scholarly Enrichment Research and Creative Scholarship, National Objectives, and State Objectives. Community Service in the proposed program structure can be crosswalked into the Public Services program category in the state program structure. The program subcategories concerned here are business, agriculture, and consumer services and governmental direction and support. The substructure in the state program category of Instructional and Research Support is not applicable to the College. In the proposed program structure, the General Support program can be crosswalked into both the Student Services program category and the State Direction program category in the state program structure. A matrix showing the crosswalking of the proposed program structure into the state program structure is presented in Figure 12. The x's in the matrix indicate where the programs in the proposed program structure fit into the state program structure.

Crosswalks

Generally speaking, a crosswalk is a cross classification of one list of items on the basis of another list of items. An example of a crosswalk is a presentation of the degrees awarded to students by level for a number of years.

Within a PPB System, crosswalks are used to relate the

program structure to appropriate organizational units. In this way, program planning and decision making can be related to the subordinate units of an organization.

A college of business administration is organized primarily along business discipline lines. Organizing on the basis of disciplinary specialty has advantages for recruiting, faculty development and utilization, and supervision. Each discipline may constitute an academic department within the college, and each department is under the general direction of a chairman.

The College of Business Administration at the University of Florida is composed of the Office of the Dean and eight subordinate organizational units. This organization structure is displayed in Figure 11 on page 120.

The six academic departments in the College carry on activities in every program in the proposed program structure. Each academic department contains faculty members who teach and counsel students, conduct research, and engage in community service activities. Moreover, each of these departments is administered by a chairman who provides executive leadership for the department.

Both basic and applied research and community service activities are carried on by the Bureau of Economic and Business Research. The Bureau is headed by a director who provides executive leadership.

Two other organizations in the College, the Management Center and Business Associates, also provide service to the

community at large and to special groups. Each of these organizations is administered by a director who would come under the general administration activity in the General Support program.

The Office of the Dean is wholly in the General Support program. This Office provides information services, student services, and general administration activities for the College. A matrix showing the crosswalking of the College of Business Administration organizational units into the proposed program structure is presented in Figure 13. The x's in the matrix indicate which organizational units in the College engage in which activities in the proposed program structure.

Analytical Cycle

There are alternate ways to conduct program analysis in the College of Business Administration at the University of Florida. Three methods are:

1. A PPBS committee for the entire College with a structure of five college-wide committees, one for each program in the proposed program structure.
2. A structure of departmental committees with every department establishing a committee for each program in the proposed program structure.
3. The establishment of a central PPBS staff with a director designated for each program in the proposed program structure.

Proposed Program Structure

Development of Administrators	Accounting	Economics	Finance Insurance and Real Estate	Management and Business Law	Marketing	Bureau of Economic and Business Research	Management Center	Business Associates	Office of the Dean
Bachelor of Science in Business Administration									
Accounting	x								
Banking and Finance			x						
Business Education									
Data Processing									
Economics		x							
Foreign Trade and Transportation		x							
Insurance			x						
Management				x					
Marketing					x				
Quantitative Methods				x					
Real Estate			x						
Secretarial Administration									
General Business				x					
Bachelor of Advanced Accountancy	x								

FIGURE 13

MATRIX OF THE PROPOSED PROGRAM STRUCTURE AND THE ORGANIZATIONAL UNITS OF THE COLLEGE OF BUSINESS ADMINISTRATION AT THE UNIVERSITY OF FLORIDA

Proposed Program Structure

	Accounting	Economics	Finance Insurance and Real Estate	Management and Business Law	Marketing	Bureau of Economic and Business Research	Management Center	Business Associates	Office of the Dean
Master of Business Administration									
Accounting	X								
Economics		X							
Finance and Insurance			X						
Foreign Trade		X							
Management				X					
Marketing					X				
Operations Research									
Real Estate			X						
Master of Arts in Business Administration									
Accounting	X								
Economics		X							
Finance and Insurance			X						
Foreign Trade		X							
Hospital Administration				X					
Management				X					
Marketing					X				
Operations Research									
Real Estate			X						

FIGURE 13

(Continued)

Proposed Program Structure

	Accounting	Economics	Finance Insurance and Real Estate	Management and Business Law	Marketing	Bureau of Economic and Business Research	Management Center	Business Associates	Office of the Dean
Development of Teachers									
Doctor of Philosophy in Economics		x							
Doctor of Philosophy in Economics and Business Administration									
Finance and Insurance			x						
Management				x					
Marketing					x				
Operations Research									
Real Estate		x							
Creation of Knowledge									
Organized									
Externally Sponsored	x	x	x	x	x	x			
Internally Sponsored	x	x	x	x	x	x			
Individual									
Externally Sponsored	x	x	x	x	x				
Internally Sponsored	x	x	x	x	x				

FIGURE 13

(Continued)

Proposed Program Structure

	Accounting	Economics	Finance Insurance and Real Estate	Management and Business Law	Marketing	Bureau of Economic and Business Research	Management Center	Business Associates	Office of the Dean
Community Service									
Special Education Services									
Non-Credit Correspondence Study							x		
Special Activities							x	x	
Public Information Services									
Publications	x	x	x	x	x	x		x	
Conferences, Workshops, etc.	x	x	x	x	x	x	x	x	
Individual Service									
Consulting	x	x	x	x	x	x			
Advising	x	x	x	x	x	x		x	
General Support									
Academic Support									
Counseling	x	x	x	x	x				
Information Services									x
Student Services									
Financial Assistance									x
Other Services									x
General Administration									
Executive	x	x	x	x	x	x	x	x	x
Financial									x
Auxiliary									x

FIGURE 13

(Continued)

The most feasible alternative appears to be number one. The establishment of program committees on a college-wide basis would provide a multi-disciplined approach to analysis and problem-solving. These program committees would report to a College PPBS committee which would be chaired by the College Director for Planning and Budgeting or an Assistant Dean for Administration. If it were deemed necessary or desirable, subcommittees could be established within the program committees. This alternative would allow professionals from each organizational unit within the College to participate in the planning and budgeting cycle and would take advantage of the knowledge and expertise of individual faculty members. This alternative would require only the existing central staff, would require all administrators who are responsible for implementation to participate in the planning and budgeting process, would be open to the interjection of new ideas in all phases of the planning and budgeting process, and would result in the development of objective and coordinated plans since the program committees would be free of a single department bias. The responsibilities of the program committees would include:

a) Preparation of analytical studies, including the definition of problems, the identification of program objectives, the determination of measures of effectiveness, the identification of alternative courses of action, the estimation of cost implications, the

presentation of "trade-offs," and the identification of uncertainties and assumptions.

b) Preparation of program memoranda for the College based upon the program memoranda submitted by each academic department and other organizational unit.

c) Coordination of subcommittees if there are any.

d) Preparation of recommendations to the Dean.

Method number two is not recommended because it would tend to fragment the College by having each department develop its own plans independently. This would result in a set of uncoordinated plans and could lead to plans which would reflect a departmental bias. In place of a College horizon, there would be only a departmental horizon.

Method number three is also not recommended for several reasons. It would require the development of a large central staff and hence would be costly. Moreover, it would tend to concentrate the planning for the College in a single staff and would not take advantage of the capabilities of individual faculty members. This alternative would create another organizational structure within the College and result in conflict between the current administrators and the program directors. In addition, it would set up a group of planners who would not have major responsibility for implementation.

Multi-Year Program and Financial Plan

It should be remembered that the first future year in the program and financial plan is also the upcoming budget year and requires a great deal of supporting documentation. This supporting documentation includes information on manpower workloads and productivity, anticipated student enrollment by level, classroom section enrollments and sizes, salaries by type of personnel, space requirements by type, sources of funds, and other things. The entire presentation for the upcoming budget year constitutes what is known in the State of Florida as the Legislative Budget Request.

Implementation and Operation

Once a comprehensive, goal-oriented program structure and the instruments associated with it have been developed, the next step is to implement the overall system by designing a formal planning-programming-budgeting cycle to support the system within a college of business administration. This cycle is typically about 12 months in length, although it can be longer. A twelve-month cycle ties in with the annual budget submissions which are required of public, and most private, institutions.

The federal government has been striving to implement PPBS throughout the executive branch for almost five years. Yet few federal agencies presently have fully operational systems (Harper et al., 1969, pp. 623-632). Based upon this experience, it would be rash to predict that a PPB System can be implemented overnight. Rather, the evidence

suggests that a number of years will elapse before a newly designed PPB System becomes fully operational. Thus one should not anticipate miracles.

One way to achieve implementation of the PPB System throughout the organization is to disseminate the program structure and its associated instruments to subordinate organizational units and require that specified documentation (e.g., program memoranda, a multi-year program and financial plan, and a resource request form) be developed. This would force each unit head to make explicit the objectives of his unit and the means to achieve them prior to preparing the required documentation. In this way, those who are responsible for implementing the plans are involved in the planning process. The objectives and the means of accomplishing them would be translated into personnel, physical, and financial resource requirements and thus form the basis for the specified documentation. The data representing these requirements would be entered into the various resource request forms, aggregated in the multi-year program and financial plan, and explained in the narrative of the program memoranda. Factors and guidelines upon which to base planning would come either from the Dean or higher authority. The important thing is to ensure that consistent factors and guidelines are applied to all subordinate organizational units.

The sequence of using the program structure and its associated documents first in the implementation process is

advantageous because it shows what data elements are needed to support the PPB System and its implementation. In this way, the problem is defined and solutions to it can be developed. To start with the solution before the problem has been defined is akin to putting the proverbial cart before the horse. Lest the reader think that this cannot happen, it should be noted that the Planning Office for the State University System of Florida actually designed and promulgated data reporting forms to support its PPB System prior to developing the program structure and the other instruments that constituted this system.* If the consequences had not been so serious, the entire episode might have been considered humorous.

It has been previously noted that a PPBS endeavor needs the support of a comprehensive information system. Once the required data elements have been ascertained, the information system that is needed can be determined. Since a great proportion of the data is susceptible to being processed automatically, it is processed at either the Administrative Computer facility or the University Computing Center. To take advantage of the capabilities of this information system, it would appear to be in the interest of the College if it secured one or two satellite terminals to

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* Information obtained from George Kaludis letter to university PPBS representatives responsible for the development of the State University System six-year plan, November 20, 1969.

the University Computing Center. These conceivably could be located somewhere in the Computing Laboratory in the College and utilized on a time-sharing basis. While the present information system is far from ideal as far as a PPB System is concerned, it does provide useful information. Moreover, the Division of Institutional Analysis in the Office of the President is in the process of devising a new information system which will serve the needs of the University and its colleges in the realm of PPBS as well as in the sphere of improved general administration.

Planning and analysis can be conducted throughout the year. It is not necessary to wait for university decision makers to issue directives for submissions of program memoranda, the annual update to the multi-year program and financial plan, and other PPBS documentation. By the time that these directives are issued in practice, there is usually sufficient time only to document plans that have already been made and translate these into requests for physical and financial resources. This situation is parallel to a nuclear conflict where each adversary does not have time to arm further but rather must fight with the combat capability he has on hand.

The implementation of a PPB System includes the development of measures to evaluate performance concerning both the consumption of resource inputs and the production of outputs. These measures are required for each of the five programs in the program structure. Since the activities

within these programs are difficult both to define and to evaluate, a single measure of performance in each case will not suffice. Several measures must be used for each major activity, and judgments as to which measures are most important will have to be made.

Once the PPBS instruments have been developed and a planning-programming-budgeting cycle has been designed, the next step for the College is to put its PPB System into operation. The System could work in the following manner. The College PPBS committee would coordinate the entire operation as well as the activities of the five program committees. These program committees would carry out the general program planning and analysis for the College. Based upon this planning and analysis, each program committee would develop a program memorandum for its particular program. These five program memoranda would then be circulated to the academic department chairmen and the directors of other units within the College. These administrators would review and comment on the five program memoranda and, in addition, would develop departmental and unit program memoranda. College and departmental program memoranda would then be sent back to the five College program committees to allow them to revise their original program memoranda and forward these second draft program memoranda to the College PPBS committee. It would review these memoranda prior to forwarding them to the Dean. Following the Dean's review and comments, the program

memoranda for the College would be returned to the College PPBS committee for any final revisions prior to final approval by the Dean and subsequent submission to higher authority. A diagram showing this entire procedure is displayed in Figure 14.

An annual timetable that can be applied to the PPBS procedure in the College is presented in Figure 10 on page 117. M-month is the time that College plans and its budget request must be submitted to the next higher level of authority. The planning and analysis depicted in the diagram is related to College plans and its budget request. General planning and analysis for the College would be conducted throughout the year.

Program Evaluation

One aspect of PPBS involves the devising of measures by which to evaluate programs and activities within programs. The need for evaluation arises because resources are limited and choices must consequently be made among the alternative ways by which to accomplish organizational objectives. Program evaluation involves the assessment of these alternatives and permits trade-offs to be made among programs and among subprograms.

This is not to infer that program evaluation is easy. On the contrary, it is typically complex and difficult, as many writers on the subject point out (Steiner, August, 1965; Maass, 1966; Tucker, 1966; Carlson, 1969; Novick,

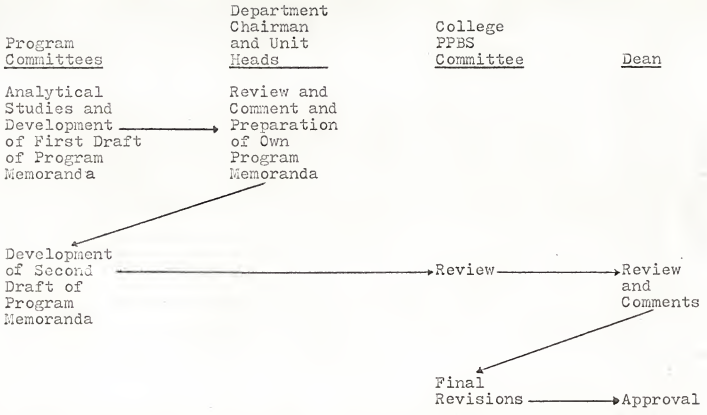
Program Committees
Department Chairman and Unit Heads
College PPBS Committee
Dean
Analytical Studies and Development of First Draft of Program Memoranda
Review and Comment and Preparation of Own Program Memoranda
Development of Second Draft of Program Memoranda
Review
Review and Comments
Final Revisions
Approval

FIGURE 14

DIAGRAM OF ANNUAL PPBS SUBMISSION FOR THE COLLEGE OF BUSINESS ADMINISTRATION AT THE UNIVERSITY OF FLORIDA

1967; Harper et al., 1969; Schultze, 1968; Mosher, 1969; Botner, 1970; and McKean and Anshen, 1965). However, program evaluation must at least be attempted regardless of the complexities and difficulties involved.

There are several types of measures which may be utilized to evaluate the programs and activities that comprise the program structure proposed earlier. Broadly speaking, these measures may be classified in the following manner:

1. Input
2. Output
3. Workload
4. Effectiveness
5. Benefit.

It should be noted that these five types of evaluation measures are not mutually exclusive. That is, more than one type of measure can be used to evaluate each program in the proposed program structure. In fact, it would be unrealistic to think that the full impact of a particular program can be evaluated on the basis of a single measure. For example, measures of input, output, effectiveness, and benefit can be utilized to evaluate the development of administrators and teachers programs.

Input Measures

Students comprise an input into the development of administrators and teachers programs. They are the raw

material, so to speak, from which administrators and teachers are developed. Therefore, these students need to be evaluated as an input.

This can be accomplished by using student performance results on standardized achievement tests such as the Advanced Tests of the Graduate Record Examination or the Admission Test for Graduate Study in Business. In addition, student grade point averages might be utilized, although they might have an institutional bias.

Measures of input also usually involve the dollar costs of the resources that are consumed. In a college of business administration, these include the costs of personnel, supplies, equipment, and physical facilities. These input measures can be applied to the five programs in the proposed program structure, because each program consumes these kinds of resources.

Input measures may also be concerned with the evaluation of these resources. For instance, the degree of excellence of instructional activities is dependent upon the caliber of teaching faculty. The same relationship applies to research, community service, and general support activities respectively. Consequently, measures pertaining to the qualifications of the faculty may be useful in this instance. Perhaps factors such as the percentage of doctorates on the faculty and the percentage of these doctorates awarded by institutions producing over 150 doctorates per year would be meaningful indicators when compared with national or state standards.

Productivity factors for research and creative activity and percentage factors for community service activities may also prove useful when applied to the faculty in a similar manner.

Output Measures

Generally, measures of output are concerned with the amount of goods and services that are produced. Measures of this type may be useful in evaluating some of the programs in the proposed program structure. For example, one way to measure the programs which deal with the development of administrators and teachers is in terms of the number and percentage of enrollees satisfactorily completing so many years of schooling and specific academic requirements and receiving degrees in business administration each year. The number and types of degrees granted annually can also be of some use as criteria. Another way to measure these programs is in terms of the number and percentage of students by level who drop out of a college of business administration every year. Man-years of study might also be a useful measure since it takes into account the education of both those who complete the degree and those who do not.

These measures emphasize the quantity of higher education received. One problem with this is that completion of certain requirements and the receipt of a degree does not necessarily mean the development of human capital, in this case administrators and teachers. Measures which attempt to indicate the quality of higher education received are needed. Examples of these are discussed under effectiveness measures.

Quantitative measures of output may also be applied to the program concerned with the creation of knowledge. For instance, output might be measured by the number of research projects completed, the number of awards and citations received, the number of publications written, the number of pages of these publications, or an index of the number of pages per publication. The question that arises, however, is whether output measures such as these are meaningful. Knowledge is created to benefit mankind. Measures which deal solely with the amount of knowledge that is created rather than the quality or need for this knowledge would seem to possess limited usefulness.

The community service program may also be measured by output indices. This might involve the number of people and the percentage of the state's population who are exposed to the various activities in community service. It might also be concerned with the number of seminars, workshops, and conferences given and the number of attendees at these gatherings. For non-credit correspondence study courses, the number and percentage of enrollees satisfactorily completing each course may serve as a useful measure of output. It should be noted, however, that these measures deal with the quantities of goods and services that are produced rather than with the quality of these goods and services and the effects that are produced.

It would seem that output measures are least applicable to the program of general support in the proposed program

structure. By its very nature, general support is not a program which is directly concerned with final products but rather is a service program dealing with intermediate work which assists the four primary programs in the proposed program structure. Consequently, another type of measure is needed for meaningful evaluation of the general support program.

Workload Measures

Workload measures are normally concerned with the volume of work that is accomplished. For example, in the development of administrators and teachers programs, workload measures such as the number of contact hours and the number of credit hours that are generated might be utilized. The number of students enrolled may also be viewed as a workload measure. The weakness of these indicators is that they deal with intermediate products not with final output which is associated with the fundamental purposes of the organization. These purposes do not involve generating contact hours and credit hours but rather involve developing administrators and teachers. In the creation of knowledge program, workload measures such as the number of research projects in process or the number of manhours devoted to research endeavors may be used. Again, these measures do not deal with final output. The community service program does not seem to be meaningfully susceptible to workload measures.

However, the general support program appears to lend itself quite nicely to the application of measures of workload. This program is concerned with work that supports the four primary programs in the proposed program structure and, hence, would seem to be susceptible to workload measures which evaluate performance. For a university, these measures might include the number of machines serviced, the volume of printing processed, the number of applications processed, and so forth depending upon the subordinate organization concerned. At the level of a college within a university, workload measures might include the number of personnel and other files maintained, the volume of letters and reports typed, and similar factors for the clerical staff. For professional administrative personnel, the measures could include the number of students counseled, the number of faculty supported, and the size of the student body which is majoring in the particular college.

Effectiveness Measures

Measures of effectiveness are concerned with the degree to which organizational objectives are achieved. In a university environment, effectiveness is difficult to define precisely and even more difficult to measure. It cannot be determined with anything near the accuracy that cost can be determined. Consequently, indirect or proxy measures may have to be used to evaluate the effectiveness of a program or activity in a college. These measures do not come directly to grips with the issue, but they point in the

right direction. Examples of such measures which might conceivably be applied to the development of administrators and teachers programs include the number of doctorates receiving post-doctoral fellowships and similar awards, the number of doctorates who each year obtain positions in universities which award over 150 doctoral degrees annually, the number and percentage of graduates who continue their education by going on for advanced degrees, and the number and percentage of graduates who pass national achievement tests and professional examinations such as the certified public accountants examination. Comparison of these measures should be made with national and state standards. It might also be possible to relate income to educational achievement for these two programs (Dyer, 1970, p. 292). However, this type of analysis is more closely associated with benefit than with effectiveness.

It is also extremely difficult to determine the effectiveness of the subcategories and elements which make up the creation of knowledge program. Perhaps it might be more meaningful to analyze the benefits that are derived from research activities rather than their effectiveness. Nevertheless, one effectiveness measure that might conceivably be applied here is the extent to which the particular research project contributes to departmental and college objectives. For instance, one departmental or college objective for research might be to raise money. An indicator of the degree to which this objective is being accomplished

might be the amount of sponsored research in dollars and the proportion of total research funds that this represents.

The community service program also seems to lend itself more meaningfully to evaluation from a benefit viewpoint than from an effectiveness viewpoint because it is primarily concerned with assisting people rather than with producing a quantifiable product. Consequently, the benefits that people derive from community service activities appear to be the most useful indicators for evaluating this program.

As noted previously, the general support program assists the four primary programs in accomplishing their goals. Applying effectiveness measures to this program does not seem to represent a very meaningful way to evaluate it. For example, an increase in the number of faculty supported or in the number of students majoring in a college would have a bearing on workload not effectiveness. And a decline in the average time to counsel a student would not be indicative of increased effectiveness in this area.

Benefit Measures

Measures of benefit deal with the value that is derived from the attainment of organizational objectives. Essentially, this is one step beyond effectiveness, and it involves some very difficult and complex issues. For example, in attempting to estimate the benefits that come from the programs concerned with the development of administrators and teachers, the question of what is the value that is realized

from the development of an administrator or a teacher arises. It can be stated that these programs contribute to individual intellectual growth (consumption benefits) and also, presumably, lead to increased employability (production benefits). Moreover, these benefits may be further classified as private benefits and social benefits (Weiner et al., 1968, p. 7). Private benefits are those which accrue to the individual who receives the education (e.g., greater income). Social benefits are those which are derived by others who do not receive this particular increment of education but who benefit from someone else receiving this education. While these categories of benefits can be recognized without difficulty, the problem of measuring them is not as easy to resolve because "the present state of knowledge or the present availability of data restricts the number of benefits reducible to money terms" (Weiner et al., 1968, p. 7).

Even in cases where monetary values can be determined, the evaluation is difficult. For example, it is an arduous task to determine the value of a college dropout. A college dropout generally possesses greater value for society and himself than a person who has never attended college but less value than a person who graduates. It may be possible to arrive at more precise determinations of value by utilizing a criterion such as earning power of each level of person. Earning power data may be viewed as an indicator of economic value, and they may be as accurate as cost and output data. For instance, the expected lifetime income streams of

graduates at various degree levels could be estimated from historical data which are adjusted for socioeconomic and other factors. An appropriate discount rate would then be applied to these expected income streams to determine their present value. A recent study dealing, in part, with the subject of higher education and its value to society covered the income generation effect of higher educational achievement. The study suggests that approximately three fourths of the difference between the anticipated earnings of a college graduate and those of a high school graduate can be attributed to the additional schooling involved (Hansen and Weisbrod, 1969, pp. 18-19). The remaining one quarter of the differential was attributed to the factors of ability and motivation. In general, it was found that there was a consistent pattern of incomes increasing as the level of education increased. Thus, college dropouts had greater earnings than high school graduates and lower earnings than college graduates.

The problem of benefit or value determination also arises with respect to the creation of knowledge program. The benefits of research, particularly basic or fundamental research, are difficult to project with any degree of precision in most instances. Yet criteria are needed to evaluate research activities and projects. For example, one useful criterion might be the urgency of the research coupled with the knowledge that this research is not being conducted elsewhere. A strong likelihood of immediately

useful results for widespread adoption might serve as another indicator for evaluative purposes. The size and scope of the undertaking and the people affected by the research could be another criterion. It could conceivably be that the main value of a particular research endeavor is that it makes the investigator a better researcher and this will, in all probability, lead to valuable research on his part in the future. The common feature about these types of criteria is that some kind of judgment is necessary with them. In fact, the use of criteria such as these may provide assistance to those who must judge research endeavors. This assistance could be rendered through the use of a weighting scheme. Each criterion could have a numerical weight attached to it. Research activities and projects could be scored on the basis of the following scale for the extent to which they meet each criterion:

3 meets criterion

2 criterion is not applicable

1 opposite to criterion

For each research activity or project under consideration, the individual criterion scores would be multiplied by the applicable weight and summed to give a total score. These total scores could then be used in arriving at judgments concerning the relative importance of each research activity or project being studied. The value of books and other scholarly publications may be indicated by the demand for them or by their circulation volume. A greater demand for

one publication than for a similar type of publication would mean the former has greater value than the latter. This would also apply to comparing the value of one journal with another. While these types of indicators are not optimum, they may point in the right direction and are better than no measures at all.

While it is more meaningful to evaluate the community service program on the basis of benefit rather than effectiveness, this does not make the evaluation any easier to accomplish. Indirect or proxy measures will probably have to be utilized. For example, the percentage of the applicable population that is in correspondence study courses might give some indication of their value to the public or to a particular group. Even total enrollment may be indicative of value expecially when the trend and rate of change (increase or decrease) are considered. These types of factors may also be useful in evaluating workshops, conferences, and seminars. The number of people who attend these undertakings can provide a measure of value for comparison purposes.

The benefit of the general support program is its service to the four primary programs. This is virtually impossible to evaluate from a practical viewpoint. Accordingly, it seems that workload measures constitute the most satisfactory means for evaluating the activities which comprise the general support program.

Measures in the State of Florida PPB System

For the 1971-72 program budget and six-year plan, the State of Florida is attempting to evaluate programs and activities by utilizing the following five types of measures (State of Florida, August 5, 1970, p. 9):

1. Effectiveness: the extent to which a program or activity is expected to accomplish its objectives.
2. Need: the number of people who require or desire the service in question.
3. Coverage: the percentage of those needing service who will be served by the program or activity.
4. Workload: the volume of work to be accomplished.
5. Efficiency: the productivity of resource utilization within a program or activity.

These measures apply to all programs and activities in the Florida PPB System except those concerned with central administration which was exempted from explicit program evaluation for the 1971-1972 submissions (State of Florida, August 5, 1970, p. 12).

For the 1971-1972 budgetary submissions, it was found that effectiveness and efficiency measures were extremely difficult to develop with any accuracy for programs and activities at the current state of the art of Florida's PPB System. With the severe time constraints under which

the submissions were made and the fact that this was the first year that the budgetary submissions were developed on the basis of the PPES approach, it was found that measures of the other three types were relatively easier to develop. Moreover, since all five types of measures were designed to be applied to all the programs and activities of the State of Florida, a factor such as academic quality was not taken into account. Nevertheless, these measures represent an attempt to evaluate programs and activities on an objective basis and, therefore, seem to be a step in the right direction.

Problem Illumination

When evaluation measures are applied to the programs and activities of a college, some thorny problems can be brought to the surface. For example, if student enrollment in a course in the College of Business Administration at the University of Florida has reached the maximum allowable number, the course is closed to further enrollment. Additional students who wish to take this particular course are obliged to take some other course. The student credit hours which are generated are in the course taken not in the course desired in this instance. Since budgetary allocations are based upon the student credit hours generated by level and these generated credit hours are not necessarily an indicator of the demand for education by discipline or even by college, the result is a misallocation of resources. Program evaluation techniques could conceivably be applied here to determine the extent to which this problem exists

and to point out what steps can and should be taken to correct the situation.

The College of Business Administration, like other organizations in the University, is faced with the situation of making resource allocations in an atmosphere of constrained choice. Since there are never enough resources available to do everything that the College would like to do, priorities must be set. The question that arises is: how are these priorities established? Assume, for instance, that an additional allocation of $100,000 in salaries is made to the College. What must now be decided is the disposition of the $100,000 within the College. Should the funds all go to one department? If not, in what proportion should they be allocated to the departments concerned? To what alternative uses could the funds be put within the educational effort of the College? There are obviously interactions and interdependencies among the organizational units within the College that must be taken into account. Program analysis and evaluation can bring these interactions and interdependencies into view and can point out the areas of high payoff within the overall educational effort of the College by showing the costs and, to some extent, the benefits of activities and alternative allocations of resources. For example, it might be that a high-payoff allocation of the $100,000 between additional full-time faculty and part-time graduate assistants and associates could be determined. Or, it could be shown whether it would yield a higher payoff to hire an

additional faculty member in the Department of Accounting or to conduct a two-month summer workshop for the same amount of money.

In the PPBS process at the University of Florida, requests for resources are broken down into those resources needed to continue current activities at their present quality level, those needed to improve current activities up to a desired quality level, and those needed for new activities at a desired quality level. Initially, at least, it is being assumed that current activities were justified in the past and, hence, will continue without further justification. Thus the zero-base concept in PPBS is being waived for the time being. However, justifications must be made and priorities must be set for improvements in current activities and for new activities. The College of Business Administration would set its own priorities on these activities, and then the requests would be forwarded to University administrators and assigned University priorities.

Hopefully, the setting of priorities and any subsequent allocation of resources would be based upon program analysis of the cost-effectiveness or cost-benefit type. But this is by no means certain. Political consideration will undoubtedly enter the picture. What is needed and what is wanted are not necessarily the same thing.

The funding received will be less than that requested. Consequently, some hard decisions will have to be made within these constraints. For example, the funding received from the

Florida Board of Regents for the 1970-71 operating year is so stringent, that the salary raise money allocated is not sufficient to keep up with inflation.* Thus there is very little room for making discretionary allocations within the University. In future years, it is hoped that the funding situation will not be as bleak as it is now.

Trade-Offs

In PPBS, the "program structure attempts to group activities which support common objectives in order to highlight the fact that the activities within such groups can be traded-off, i.e., substituted for one another" (Dellinger, 1969, p. 56). With its analysis of programs and activities, program evaluation can help to point out when and where it could be beneficial to make trade-offs. For example, in the proposed program structure, trade-offs could be made between programs such as those for the development of administrators and the development of teachers or between activities such as credit instruction and non-credit instruction within each program. In addition, the analysis could highlight those courses for which student demand is low. The issue would then be whether or not these courses should be eliminated or consolidated with other courses, thereby freeing resources for other activities.

More rigorous analysis of the cost of instruction by

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*Information obtained from Robert B. Mautz letter to Members, Council of Presidents, State University System of Florida, June 26, 1970.

discipline area or by course may be possible some years hence in the Florida State University System. It is hoped that the information will then be available and the techniques will have been developed to permit the cost per credit hour of courses of instruction to be determined with a high degree of preciseness. At present, it is not possible, with any level of exactness, to designate all of the items associated with the cost of a credit hour of instruction. While it may be possible to allocate teaching faculty salaries on a per course and a per credit hour basis, the results would hardly be meaningful. If section size was uniform, the analysis would merely show that salary cost is normally higher for a credit hour taught by a professor than it is for one taught by an associate professor or an assistant professor. When sections have various sizes, the analysis would typically show that the teaching faculty salary cost of a credit hour of instruction is less in a large section than it is in a small section. However, this level of analysis is not very meaningful. Total and component cost data which are on a course and credit hour basis and which take into account the cost differences of various discipline areas are needed. These data are not currently available.

Besides measuring the five factors previously discussed, evaluation measures can show what is given up when trade-offs are being considered to shift money from one program to another or from one activity to another. For instance, the number of administrators that would have to be given up to

develop an additional teacher can be determined. And, it can be ascertained how many teachers could be developed for the cost of a computer. It is recognized that these trade-off types of statistics do not, in themselves, tell much about what is actually being accomplished. However, in conjunction with the five types of evaluation measures, trade-off statistics can be extremely valuable when resource allocations are being made.

When trade-offs are being contemplated, the main consideration is opportunity cost. Each dollar that is allocated for something cannot be allocated for anything else. Thus if there are not enough dollars to satisfy every need and want, and there never are, each dollar

1. that is allocated to develop teachers is not available to develop administrators
2. that is allocated for the development of teachers or administrators is not available to create knowledge
3. that is earmarked for community service cannot be utilized for instruction or research
4. that is assigned to support graduate students is one less dollar that is available to support student assistants or to hire consultants.

This list could be endless. The point is that with limited and fully utilized resources, the only way to increase the

number of teachers being developed, for example, is to sacrifice something else. Thus in supporting the goals of a college of business administration, available resources should be put to their best possible use.

A Comparison of the Proposed PPBS Model and the Florida PPB System

It has been previously noted that the proposed PPBS model differs significantly from the Florida PPB System. Figure 12 presents the proposed program structure cross-walked into the Florida PPBS program structure and reveals two of the conceptual differences between the two models.

An attempt was made to compare the proposed PPBS model with the Florida PPB System by means of a numerical analysis. However, because of the difficulties that were encountered with the data required to make this type of analysis, it was not possible to do. A conceptual type of comparison is, therefore, made. Then the difficulties that were encountered with the data are enumerated.

Conceptual Differences

There are three fundamental differences between the proposed PPBS model and the Florida PPB System. All three differences are conceptual and exert a profound impact on the usefulness of the models. The differences are:

1) The proposed PPBS model is goal oriented, whereas the Florida PPB System is process oriented.

2) The proposed PPBS model is conceptually structured to take into account joint costs between processes; the Florida model is not.

3) The proposed PPBS model allows for the consideration of both effectiveness and benefit in attempting to evaluate programs and subprograms, while the Florida PPB System does not.

Orientation

As an institution of higher learning, a university serves man in two very important ways. First, it develops people or human capital. As far as a college of business administration is concerned, this means developing administrators and, in many cases, teachers. Second, a university adds to the store of human knowledge. Thus the development of human capital and the creation of knowledge are two goals of a university.

The reader may recall that one of the most important features of PPBS is its goal orientation. In this way, PPBS focuses on what, in a final output sense, is being accomplished with the resources that are allocated to an organization. The primary concern is with what is being achieved, the effectiveness with which this achievement is taking place, and the benefit which is realized from the particular level of achievement.

The proposed PPBS model is goal oriented. This is

revealed in three of its primary programs which are listed below:

Development of Administrators

Development of Teachers

Creation of Knowledge.

In this way, the proposed PPBS model focuses on the particular types of human capital that a college of business administration is striving to develop as well as on the generation of knowledge.

However, the Florida PPB System does not focus on the goals of higher education but rather is oriented toward the processes by which inputs are transformed into outputs. The reader will recall that Figure 2 on page 89 illustrates how resources and students are processed into administrators and teachers, research findings, and services to the community. The processes for accomplishing the first two outputs are instruction and research. Instruction and research are the first two programs in the Florida PPB System.

Thus the Florida model does not rise to the level of viewing final products (e.g., the human capital developed) but rather focuses on intermediate products (e.g., contact hours and student credit hours). While these intermediate products may be useful as indicators of workload, they are not useful as indicators of final output. With respect to research, the Florida model does consider gross quantitative factors such as number of full-time equivalent academic research positions and dollar resources for research efforts.

However, as will be discussed later, no means by which to evaluate qualitatively these factors are provided for even on a conceptual.

Joint Costs

There are many complex problems which arise with respect to the allocation of resources in institutions of higher learning. One of these problems involves the case of joint costs. For purposes of this analysis, only instruction and research will be considered, although it is recognized that, in reality, there would also be joint costs between each of these two processes and the public service process.

In an institution of higher learning, instruction and research are two processes which employ the same inputs. An illustration of this relationship is presented in Figure 15. Students and both fiscal and physical resources comprise the inputs which are processed by means of instruction and research into administrators, teachers, and research findings. However, the relationship is more complex than this. Each process produces not only final outputs but also intermediate outputs which act as inputs into the other process. For example, the research process produces a final output in the form of research findings. However, research also produces an intermediate output which constitutes an input into the instruction process. This is because research has a faculty maintenance function of keeping faculty personnel abreast of developments in their respective fields. Thus research can

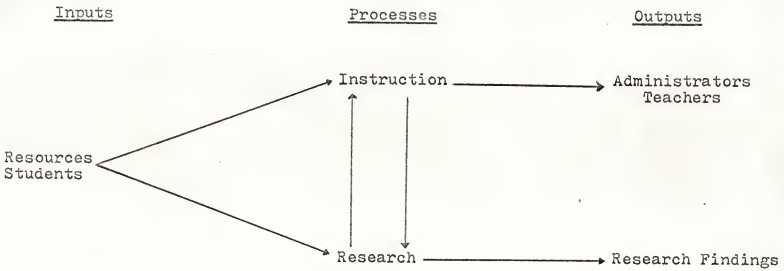

FIGURE 15

AN ILLUSTRATION OF THE RELATIONSHIP OF INSTRUCTION AND RESEARCH IN A COLLEGE OF BUSINESS ADMINISTRATION

be regarded, to some extent, as a capital investment in instruction.

At the same time, the instruction process produces not only a final output in the form of administrators and teachers but also an intermediate output which operates as an input into the research process. Courses of instruction dealing with research under a supervisor and research and report writing involve instructional efforts by the student which support research. The same can be said of thesis and dissertation courses. Moreover, the fiscal support which many students receive in the form of student and graduate assistantships in conjunction with their academic programs of study can be regarded as instructional support for research in many cases.

Thus it can be seen that instruction and research are, to a large extent, interdependent processes within higher education. To view them otherwise would be contrary to fact.

The proposed PPBS model takes this interdependent relationship into account. Instruction and research are treated as processes which jointly serve to develop administrators and teachers and produce knowledge. This would be revealed at the fourth level of the proposed program structure, the subelement level. Under each element (e.g., Accounting, Economics, and Management), there would be the two subelements of instruction and research. In this way, the proposed PPBS model explicitly recognizes that instruction

and research are jointly involved, to some extent, in each degree program.

However, this recognition is not present in the Florida PPBS model. First, instruction and research are treated as two mutually exclusive programs. No conceptual mechanism is provided to tie instruction and research together in serving the goals of higher learning. Second, no cognizance is given, even conceptually, to the intermediate outputs which instruction and research produce and feed into each other. The function of research as a capital investment in instruction is neglected as is the support function which instruction renders to research.

This is not to imply that the proposed PPBS model contains indicators which can measure these intermediate outputs with accuracy. The present state of evaluation techniques and information technologies precludes this. However, the proposed PPBS model takes this interdependency issue explicitly into account and provides a conceptual structure to handle it. In this way, when evaluation techniques and information technologies advance to the point where accurate measurements are possible, the conceptual groundwork will already have been laid. The lack of accurate measures does not, however, invalidate the strength which the proposed PPBS model possesses because it explicitly addresses the instruction/research interdependency issue. A parallel can be drawn with the concept of discounting. While it may not be possible to accurately determine an

appropriate discount rate, this does not mean that the concept of discounting is useless.

Evaluation measures

Since PPBS is concerned with outputs and the inputs that are employed to achieve these outputs, it would seem logical to have measures which consider these factors in evaluating programs and subprograms. The proposed PPBS model employs these types of measures as well as others. However, the Florida PPB System does not utilize these measures as such. Instead, it utilizes five types of indicators which are supposed to measure need, coverage, workload, efficiency, and effectiveness. For example, in the case of the instruction program, the specific measures are as follows*:

Effectiveness:	Number of majors graduated.
Need:	Number of majors.
Coverage:	Number of degree programs offered. Number of course offerings. Number of courses taught at least once per year.
Workload:	FTE students, by level.
Efficiency:	SCH per academic position, by level. Course offerings per FTE teacher.

As can readily be seen, these five types of measures, with the exception of need, do not consider inputs explicitly but rather allow some weight to be given to them implicitly

*Information obtained from the meeting of the Florida State University System Interinstitutional Subcommittee on Instruction, Research, and Public Service that was held at the University of South Florida on March 2, 1971.

in the measures of workload and efficiency. Furthermore, the quality of the inputs and outputs is not explicitly considered.

Within the context of PPBS, effectiveness is viewed as the degree to which an objective is achieved. This, in part, involves a consideration of quality and goes one step beyond physical output. Consequently, it is not accurate or meaningful to utilize a gross quantitative indicator of graduates as a measure of effectiveness. This type of indicator measures output.

Even assuming that this indicator is a satisfactory measure of output, there is still the issue of a lack of measures for effectiveness and benefit. They are not even provided for conceptually in the Florida PPB System.

It is presumed here that programs are carried on to benefit individuals and society. There is some value which accrues to people from the achievement of program goals and objectives in higher education. It would, therefore, seem necessary and, indeed, desirable to provide for at least the conceptualization of evaluative measures dealing with the degree to which goals and objectives are achieved and the value which arises from the particular level of achievement.

The proposed PPBS model includes measures which explicitly consider these factors. The reader will recall that the five types of measures in the proposed model are:

Input

Output

Workload

Effectiveness

Benefit.

In this way, the proposed model considers, at least on a conceptual basis, both the quantity and the quality of the inputs and the outputs.

This is not to contend, however, that the measures in the proposed model are ideal. On the contrary, it is recognized that these measures leave something to be desired. It is hoped, nevertheless, that these measures can be of some use at present and that as evaluation techniques and information technologies are improved superior measures will be developed. Moreover, it is contended that the measures in the proposed PPBS model are superior to the measures in the Florida PPB System.

Given the present state of the art of evaluation techniques and information technologies, there are a number of specific program evaluation indicators that can be meaningfully employed within the focus of the five types of measures in the proposed PPBS model. These are in addition to the many specific indicators mentioned on pages 148-159. For example, in evaluating the development of administrators program, the following could conceivably be done:

1. In attempting to measure the effectiveness

of undergraduate education, a before and after examination approach could be used. This approach would reveal the increment of achievement that a student gains from undergraduate education. One way to measure the achievement level of students entering college is by means of the Advanced Tests on the College Entrance Examination. The achievement level of students completing their undergraduate education could be assessed by means of the Advanced Tests on the Graduate Record Examination. Moreover, it might be possible to push the idea of external examinations further and have the Educational Testing Service (ETS), in conjunction with a professional society in each field, design and administer to graduating college seniors a special examination to measure the level of knowledge of each college senior in a chosen field. This last examination would reflect a consensus of a particular professional field concerning what a student who is entering the field should know. The difference between the achievement level of a graduating college senior and his achievement level as an incoming college student would represent the increment of achievement that he gained from his college education. With all these types of examinations mentioned here, comparisons

could be made with national standards and, conceivably, with other colleges and universities.

2. A comparison of starting salaries received by degree and field with a national standard and with starting salaries paid to high school graduates either at the time of their graduation or four years later may provide useful data. Hansen and Weisbrod point out that since output value is measurable in terms of what people are willing to pay for the output, the value of college education may be measured, as a first approximation, by the increments in starting salaries that are paid to college graduates in comparison to high school graduates (1969, p. 11). Moreover, in terms of inter-institutional comparisons, the level of starting salaries may provide some indication of the demand for graduates of different universities and colleges. Using starting salary data of college graduates assumes that these graduates are trying to maximize their incomes by accepting those job offers which pay the most. Information from the Director of the Career Planning and Placement Office at the University of Florida suggests that this income maximization

assumption is not at all unrealistic generally speaking.* While there are other factors (i.e., psychic income) which enter into a student's job acceptance deliberations, the overriding factor is money, particularly when it is the first post-college employment that is involved.

3. By means of questionnaires, obtain data on the contribution that a college education has made to a selected sample of graduates. In his study, Berliner sent one questionnaire to a selected group of personnel directors and another questionnaire to a particular class of alumni (1970, pp. 18-83). The questionnaire which was sent to personnel directors dealt with their preferences in education for potential employees and with a comparison of their views with respect to the performance of college graduates and non-college graduates. The alumni were asked for information on their material success and on their satisfaction with their educational experience, particularly how it helped in developing an ability to learn quickly, to make decisions, and to

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*Information obtained at a meeting on April 13, 1971.

communicate with others and how it developed specific skills, specific and general knowledge, and a broader perspective on things. Alumni of five and ten years, for example, could be selected to provide a broader picture of the benefits that have accrued to graduates of a college.

From these types of undertakings, some meaningful information could be obtained concerning the quality of the administrators being developed by the college.

It is recognized that these measures are not optimum. In fact, they are rather crude. But trying to start with sophisticated criteria may not be possible. Rather than have no criteria, it is better to start with crude indicators as a first approximation and then work at refining them.

Difficulties with a Numerical Comparison

As was mentioned previously, a numerical comparison of the proposed PPBS model and the Florida PPB System was attempted. The kind of analysis that was tried involved taking a sum of money (e.g., $3,000,000) and showing, in a somewhat realistic manner, how these dollars would be allocated on the basis of the proposed PPBS model and on the basis of the Florida PPB System. The next step would have been to compare and contrast the results of the two allocations. However, it was not possible to carry out this kind of an analysis because of the nature of the two models involved.

There are two fundamental reasons for this situation. First, it is not possible to compare the two models directly by utilizing dollars because they operate at two different levels in the organizational hierarchy. To attempt to compare them numerically would be like trying to compare "apples" and "oranges." The Florida PPB System operates at the level of a university. Thus a college of business administration is located in the Business and Management discipline area in the Florida PPB System. The proposed PPBS model, on the other hand, operates at the college level and provides the detail which may be aggregated into the Florida PPB System.

This does not mean, however, that the proposed PPBS model is merely a breakdown of the Florida PPB System. On the contrary, the proposed model is fundamentally different from the Florida PPB System.

The proposed model is oriented toward what is being accomplished, not how this accomplishment is taking place. In this way, a college is putting forth its best arguments for resource allocations, since these are tied to accomplishment. This is important because the other colleges are also using the PPBS approach. The competition for resources is keen, therefore, and planning and budgeting in this instance are not by caprice. Furthermore, in many instances, people involved in the allocation process are ill-informed or misinformed. The proposed PPBS model can correct this situation by providing information and documentation on

achievement as well as on resource requirements.

Focusing on ends rather than means allows inputs to be related to outputs, and this can lead to a more effective allocation of resources within a college. This is not to imply that funding for a college will increase automatically under the proposed PPBS model. The level of funding is not the issue here. The issue is the level of effectiveness that is achieved with whatever resources are available. Thus, it can be assumed that the level of funding is fixed, and the concern is to maximize effectiveness. The level of effectiveness would be greater in the proposed PPBS model than in the Florida PPB System because of the following factors inherent in the former:

1. Its goal orientation.
2. Its consideration of the interrelationship of instruction and research.
3. Its evaluation of input and output on both a quantitative basis and a qualitative basis.

This last factor is significant. While allocation is important, program evaluation is a vital consideration. Evaluation provides the feedback on what has been accomplished with the allocation under consideration. Evaluation measures the contribution that college programs are making not only to college goals but also to university goals. Allocation without evaluation shows, at least, only part of the picture.

Second, there is again the issue of joint costs, particularly those involving instruction and research. It

is not possible to arrive at meaningful comparisons of costs and results without at least providing for the consideration of joint costs on a conceptual basis. In the proposed PPBS model, it is possible to make comparisons on a degree program basis because the interrelationship of instruction and research is taken into account in the conceptual scheme of the model.

Academic degrees can be tied to student levels, if this is considered desirable. It would be as follows:

B.S.B.A.	upper
B.A.A.	upper
M.B.A.	beginning graduate
M.A.	beginning graduate
Ph.D.	advanced graduate

The academic course of instruction could be used as a cell for allocation purposes. Students could be classified on the basis of the degree they are pursuing. This would also designate each student as being in either the development of administrators program or the development of teachers program. It is realized that a course could serve both of these programs at the same time. For example, doctoral students and master's degree students could be enrolled in a given course. In this case, the allocation of costs to each program would, in the final analysis, be a matter of judgment.

One method of allocation would be on the basis of the proportion of the students in each of the two programs.

Thus if 70 percent of the students are classified as being in the development of administrators program, 70 percent of the costs of the course would be assigned to that program. The remaining 30 percent would be assigned to the development of teachers program.

Even with this method, there would still be the issue of determining the costs in question. Again, it would be a matter of judgment. For example, salary costs could be based upon the average salary of those teaching all sections of the course, upon an all ranks average salary for the college or department, or upon a college or department average salary for the rank of the person teaching the course. Other costs could be apportioned accordingly or on some other basis.

To view instruction and research as two mutually exclusive ends is not realistic. They are not ends; they are means. In addition, they are not mutually exclusive. This must be realized if realistic data on these processes are to be obtained, analyzed, and employed for decision-making purposes. At the present time, this situation does not exist with the Florida PPB System.

CHAPTER VI

INFORMATION NEEDS OF PPBS IN HIGHER EDUCATION

Introduction

In higher education, a fully functioning PPB System requires a comprehensive information system that will support the allocation and management of resources and will allow comparisons of expenditures and accomplishments to be made with approved plans and budgets. This information system needs to satisfy four basic requirements:

1. The daily management of organizational resources.
2. Long-term and short-term planning and resource allocations.
3. Evaluation and control.
4. The reporting capability necessary to meet legal requirements.

Since PPBS explicitly takes into account not only the internal environment of an organization but also the external environment which the organization serves, a substantial redevelopment of the information system existing in the organization when PPBS is adopted is usually necessary. This is so because the information system existing in an organization typically focuses on the internal environment and, even there, the information is not structured in groupings that are most

useful to administrators in their planning and allocation and management of resources.

Generally speaking, the following four classes of information are required in a comprehensive information system: historical information, current information, information on the direction and rate of movement, and information about the future. Planning is concerned with the future, operating is concerned with the present, and both are based upon the past.

This chapter deals with the information requirements of PPBS in a college within an institution of higher education. Special attention is paid to the information needs of the PPBS model proposed in the previous chapter. The focus is on the categories and types of information required. The discussion is limited to the central educational endeavors of a college within a university and excludes direct concern with the special-purpose portions of a university (e.g., agricultural research and extension, separately budgeted experiment stations and extension education systems, and health service and medical science centers).

Internal Information Requirements

The internal information needs of PPBS in a college may be computerized and can be categorized as follows:

1. Students
2. Faculty
3. Staff personnel

4. Facilities
5. Process
6. Alumni
7. Financial administration.

Student Information

Student information constitutes a significant part of any information system about higher education. The "size" of a college is commonly viewed in terms of student enrollment. Moreover, student information is necessary for resource requests and for the analysis of current operations.

The student information that is desired can be grouped into six categories (Thomas, April, 1970b). First, personal information about the student is needed. Some illustrative items that would be included here are name, date of birth, marital status, geographic origin, residence, and sources of financial assistance. Second, it is necessary to know something about the educational past of the student. This would include institutions previously attended, degrees awarded, and scores on standardized tests. Third, information dealing with the admission and current registration of the student in the particular college is required. Information on major field of concentration, academic level, credits earned, and credits attempted would be included in this category. The fourth category is concerned with detailed course enrollment information about the student. Among other things, this would include grades, course credits,

course identification, and course description. Fifth, it is desirable to have some information about the future plans and objectives of the student. This information would include, but not be limited to, the degree toward which the student is working, when he expects to receive it, intended major (for lower division students), and plans for further study. The sixth category of information is concerned with student demand for, as compared with enrollment in, courses. When course sections are closed to further enrollment, students are forced to take other courses. The credit hours of these students are generated in courses that are not primarily demanded. Budget allocations based upon these credit hour generations, thus, constitute misallocations of resources. And these misallocations become perpetuated.

With these types of information, it would be possible to generate reports and analyses to assist college administrators. Some examples are student body profiles, grade reports, student grade average distributions, credit hour production reports, student contact hour analyses, student enrollment reports (e.g., by headcount and full-time equivalents), distribution of student enrollment measurements (e.g., by major, degree objective, educational level, year level, discipline, department, residency status, etc.), and enrollment projections. In addition to helping administrators project resource needs and allocate and manage resources, these reports and analyses would also help in planning student academic activities, serving individual students, evaluating

activities, and informing the public.

Faculty Information

In a college, faculty members constitute a very important resource. Accordingly, a great deal of information about the faculty is needed if administrators are to plan and allocate and manage the resources available to them as effectively as possible.

This faculty information can be viewed as being in three broad categories (French, 1965). First, information on the background, qualifications, and experience of each faculty member is needed. Among other things, this would include personal information (e.g., name, marital status, salary, etc.), information on educational background and professional licenses and certifications, honors received, professional experience elsewhere, record of employment in the present college, foreign travel, and professional identification and competencies. The second category of information required deals with the professional activities of each faculty member. Professional activities include teaching assignments, research projects, administrative assignments, committee assignments, counseling assignments, public service assignments, consulting, publications and other evidence of creative achievements, and memberships in learned and professional societies. Third, information is needed on the distribution of effort of each faculty member. This typically would be done by showing the percentage of time devoted to teaching (by level), research

(by type, area, and sponsorship), administration (by type), public service (by type), counseling, intra-university activities (by type), and extra-university activities (excluding public service).

There are many uses for the above information. These would include workload studies, cost studies, comparative salary studies, ratio analyses, faculty mobility studies, demand forecasts for teaching faculty, evaluation of professional development, profiles of faculty competencies and specialities, and studies of faculty qualifications.

Staff Personnel Information

Staff personnel are support personnel, and they may be divided into two groups: professional and non-professional. Professional staff personnel do not hold faculty appointments but usually hold administrative positions of considerable importance in a college or university. Their administrative responsibilities include policy formulation and execution. At the university level, examples of staff professionals would include the comptroller, the business manager, and the director of planning. Colleges may contain professional staff personnel also. The information required on these personnel would be the same as that required on faculty members, with the possible exceptions of teaching and counseling assignments. It should be noted, however, that there are instances where professional staff personnel also teach and counsel students.

Non-professional staff personnel are the technical,

clerical, janitorial, and skilled trades personnel who support the primary activities of a university and its colleges. The information required on non-professional staff personnel would be less comprehensive than that required on professional staff personnel. While information on personal background, educational qualifications, experience, skill level, and similar things would be required, information on such items as memberships in learned societies, publications, outside consulting, and other professional activities would not be part of the information collected on non-professional staff personnel.

The types of information mentioned above can be used for a number of studies. Among these would be comparative studies, ratio analyses, turnover studies, and some of the types of studies listed under faculty information.

Facilities Information

Facilities comprise the physical environment of a university or college, and they can be divided into two groups: space and equipment. Space refers to the area available in college and university buildings to serve the purposes of higher education. Space is made up not only of classrooms and teaching laboratories but also of libraries, offices, laboratories, power plants, shops, and service areas.

Several kinds of information would be needed on space (Matherly, 1969). These would include identification of the space (e.g., designation and location), history of the space

(e.g., construction date and source of funds), quantity of space (e.g., number of rooms, net and gross area, square footage per room, number of student stations per room, and area per station), quality of the space (e.g., type of construction, condition of the space, type of seating, and provision of the use of audio-visual aids), fiscal value of the building (e.g., book value, appraised value, insurance value, and estimated cost of replacement), assignment of the space, and operating and maintenance costs of the space.

With these kinds of information, several types of analyses can be carried out. Among these would be studies of room utilization, space needs, station utilization, and operating and maintenance costs. Furthermore, the above kinds of information make possible the compilation of the space inventory which is a prerequisite for conducting some of these studies.

Equipment, the second class of facilities, refers to capital items excluding land and buildings. These items may be movable or fixed and usually meet certain criteria for dollar value and length of probably useful life. Equipment includes machinery (e.g., computers and laboratory apparatus) as well as furnishings (e.g., desks, tables, carpeting, file cabinets, and desk calculators).

The information that is required on equipment can be divided into a number of groups (Thomas, April, 1970a). Among others, these would include documentation references (e.g., invoice number and warrant number), identification

(e.g., name, code, quantity, and inventory number), location (e.g., area, building, and room), assignment of responsibility (e.g., college, department, and contract number), financial information (e.g., initial costs, installation costs, appraised value, life expectancy, and source of funds), functional assignment (if possible), operating and maintenance expenditures, and equipment downtime.

An equipment inventory can be prepared from these kinds of information. In addition, analyses of equipment operating and maintenance costs and equipment downtime can be conducted.

Process Information

Process refers to the three primary activities that are carried on by a university or college: instruction, research, and public service. Each process has special characteristics about which the administrator needs information.

For planning and management purposes, it is necessary to gather a wide variety of information on instructional activities (Thomas, May, 1970). This information would include course identifiers (e.g., organizational unit, subject field and course number), course attributes (e.g., course level, course title, credit, credit base, grading method, and number of weeks offered), section identifiers (e.g., section instruction type, weekly contact hours, instructor, meeting days, meeting time, meeting place, section size, and special facilities requirements), and the degree programs offered (by level).

The effective allocation and management of research resources also depend upon various kinds of information (Turnbull, 1967, pp. 20-23). Included would be administrative information (e.g., the title of the project, the name of the project leader, the amount of money by type that is allocated to each project from each fund source, the assignment of personnel by type to each project, and the rate of spending) and scientific information (e.g., a brief description of project objectives, plan of work, progress, and resultant publications).

A variety of information on public service activities is also needed. For adult education, the information would be similar to that mentioned under instruction. For the special activities involved in public service, the required information would include, among other things, the number of these special activities conducted (e.g., workshops, conferences, seminars, etc.), the number of attendees, and the amount of money (by object of expenditure) that is allocated to each of these endeavors.

These types of process information would permit a wide variety of analyses to be conducted. A few examples would be credit hour and section size studies in instruction, project cost analyses in research, and magnitude analyses for public service.

Alumni Information

Once a student has attended a university, he typically becomes an alumnus of that institution. For instance, a

person needs to take only one course to become an alumnus of the University of Florida.* However, this should not be construed to mean that information on this individual is no longer necessary. On the contrary, it should be interpreted to mean that different types of information become necessary in addition to the standard types needed when the individual was a student. For example, personal information is required merely to keep track of the alumnus as well as to develop alumni directories. Information on alumni gift giving is needed for record keeping and control purposes. Further, for purposes of program evaluation, it would be helpful to know how many alumni pursue a graduate education, go to specified graduate schools, win awards (e.g., post doctoral fellowships) and work up to responsible positions in industry, education, and government. For comparison purposes with other institutions, starting salary information would be needed also.

It should be recognized, however, that the amount and usefullness of information from alumni possess weaknesses for analysis purposes. Not all recipients of alumni questionnaires submit replies. It may be that the unsuccessful alumni tend not to reply, thus causing a "success" bias in the information that is received. Moreover, the information itself can be purposefully misrepresented. However, if alumni information is used in conjunction with the other categories discussed here, it would seem that some useful results could be obtained.

*Information obtained from Office of Alumni Affairs, University of Florida.

Information for Financial Administration

Financial administration may be viewed as dealing with three classes of items. These classes are income, expenditure, and cost analysis.

Income refers to the dollar resources which are available to a college. The information that is required on income would include the types of income (e.g., current, loan, and endowment and related types), the sources of income (e.g., federal, state, local, student tuition and fees, auxiliary unit sales, and gifts), and the dollars budgeted (by object) to the various organizational units within a college.

Expenditure refers to the disbursement of dollars by a college and its various subunits in carrying out their regular activities. Several kinds of information on expenditures are required. These would include the organizational subunit making the expenditure, the amount of dollars involved, the object of the expenditure (e.g., salaries and wages, other personal services, expense items, and facilities), and the functional assignment of the expenditure (if possible).

Cost analysis refers to the allocation of common costs to two or more activities, programs, or designated units. The purpose of the allocation is to assign an equitable proportion of the costs to each activity, program, or unit concerned. Once this is done, the total cost of each activity, program, or unit can be calculated.

To operate a PPB System effectively, cost information is needed in groupings that are related to the accomplishment

of programs and activities in addition to the assignment to traditional organization structures. This typically means unit cost information with the resultant need for methods by which to allocate multi unit-associated costs to each unit concerned.

Gulko suggests, for example, that to support university and college PPB Systems, the costs associated with instruction need to be broken out as follows (1970, p. 1-14):

1. Per credit hour
2. Per degree
3. Per student
4. Per academic discipline (e.g., physics) and course level of instruction
5. Per field of study (degree major) and level of student.

In addition, it would seem desirable for comparison purposes to know the cost per credit hour, both by discipline area and by academic department.

Because instruction is typically the most important activity (measured in dollars allocated) in a university or college, it is the first activity that is considered for cost analysis. A major problem is the allocation of the common costs involved.

As in a business enterprise, costs in higher educational institutions can be divided into direct and indirect. Direct costs are the dollar amounts of faculty salaries that are assignable to the primary programs of a university or

college. Indirect costs are all other charges that may be assignable to these programs. These costs would typically include staff, space, equipment, supplies, and miscellaneous expenses.

Direct costing for each program may begin with a percentage distribution of each faculty member's time on each of the programs. This percentage distribution may be obtained from a faculty activities report. When the salary of each faculty member is multiplied by the applicable percentages, the direct costs assignable to each program may be obtained for a department or college.

Indirect costing, however, is somewhat more complex and difficult. Single-program staff, space, and equipment can be assigned entirely to whichever program is applicable. For example, the costs of a computer used entirely for knowledge creation or research can be allocated to that program. The difficulties arise when the allocation of multiple-program use of staff, space, and equipment is involved.

Multiple-program staff costs may be assigned on the basis of the time spent supporting each program. This basis of staff cost allocation would require some type of internal record of the time spent by individual staff members on each program. Such a record would be similar to the faculty activity report mentioned above. While this might be easily obtainable for professional staff personnel, it could be very difficult if not impractical for non-professional staff workers.

An alternative method might be to assign staff personnel costs to the primary programs in the same proportions as faculty salary costs are assigned to these programs. Thus if total department faculty salary dollars spent are 70 percent for instruction, 15 percent for research, and 10 percent for public service (the remaining 5 percent would be in general support or central administration), staff personnel costs would be distributed in the same percentages.

The cost of space which is utilized for more than one program could be allocated on the basis of square footage and amount of time utilized. That is, the cost per square foot of space in various buildings could be determined. Costs would include operating and maintenance costs and also a depreciation charge. Depreciation on all space should be estimated according to the current replacement cost of equivalent facilities rather than on original cost (Matherly, 1969, p. 82). In this way, the opportunity cost of using any existing space of a particular type is its current replacement cost. Once a cost per square foot has been determined, a reasonable hourly cost rate could be developed based upon the concept of a workday. For some buildings, a workday for cost purposes might be from 8:00 a.m. to 10:00 p.m. Computer centers and library buildings might have longer workdays. The idea is to calculate an hourly cost rate and apply it to programs on the basis of use.

It should be noted that this type of space costing would require detailed records which may not presently be

kept in institutions of higher education. However, if the costs of programs are to be assigned to these programs as fully as possible, detailed record keeping is necessary.

There are several ways to prorate equipment costs to programs. One method might be on the basis of square footage of space. If space is prorated on the basis of use according to the area involved, the cost of the equipment within each area could be prorated in accordance with the square footage proration of the space. Another method might be on the basis of the assignment of direct cost. For example if total department faculty salaries are spent 65 percent for teaching, 25 percent for research, 5 percent for public service, and 5 percent for general support, equipment costs would be distributed in the same way. It might also be possible to classify each piece of equipment according to its use. Thus only the costs of dual program equipment would have to be prorated, perhaps according to one of the methods presented above.

Another group of costs which needs to be prorated to the programs of a college are general overhead expenses such as supplies, travel, and telephone expenditures. Probably the least complicated method to do this is on the basis of the assignment of direct cost. Thus at the department level, overhead expenses would be distributed according to the percentage distribution of faculty salaries among the programs in which the department is involved. If more accurate overhead cost allocations are desired, detailed records would

be required on the purpose of telephone calls, travel expenditures, and purchases of supplies.

The cost distributions suggested by Gulko and mentioned earlier are possible. Faculty salary costs per credit hour could be determined from the salary distribution of each faculty member and his teaching assignments. The direct cost of each credit hour and course could thus be calculated. Departmental indirect costs could then be allocated to each program on some basis depending upon the degree of accuracy desired. Those indirect costs assigned to instruction associated programs could be further distributed on the basis of departmental credit hour generations.

At present, detailed cost information by program and activity is not available in most institutions of higher education (Gulko, 1970, p. 1-14). However, many universities and colleges are working to develop this information. Once it is developed and maintained over a number of years, historical perspective should be gained and useful trend analyses should be possible.

An important factor to be considered in the assignment of indirect cost elements is the cost of doing this. The higher the level of accuracy desired, the more comprehensive the record keeping required. Such record keeping is, in itself, costly. It is expensive in terms of preparation, submission, and storage. Moreover, management requirements are not the only ones to be considered. Legal requirements also must be met. Public universities are required to submit reports to and be checked by state auditors. When public

universities and their colleges utilize federal funds, they must also meet federal requirements as far as these funds are concerned. Thus managerial and legal requirements need to be considered from the point of view both of how they are to be satisfied and the cost involved.

Information Derived from Computerized Models

The purpose of economic models in institutions of higher education is to provide administrators with the types of information that are needed to identify, evaluate, and choose preferred courses of action. These models would be computerized to provide a more rapid response capability than would otherwise be available.

Computerized economic models could be used to generate several types of information (Froomkin, 1965, pp. 55-61). First, they could identify potential growth areas and estimate the additional dollars required to support various growth rates. Second, these models could identify those areas where resources (e.g., personnel and space) are being overutilized to the extent that academic quality may be suffering. For example, some instruction may require large classes because of a shortage of teaching personnel. This may or may not have adverse effects on quality. However, these models could "flag" such instructional areas for further evaluation by administrators. If smaller classes are deemed more preferable, the models could estimate the total costs involved in reducing the classes to any desired size. A third type of information that could be generated

by using these models involves the evaluation of proposed policies. For example, last year a policy that would have prohibited University employees from enrolling in up to six credit hours of free courses per term was proposed. It seems probable that the operating costs of the University would not be significantly reduced if all such students were eliminated. If this is true, the out-of-pocket costs for this fringe benefit is near or equal to zero. Economic models could assess the costs and probable impact of policy proposals such as this.

The above types of information are valuable to university and college administrators in establishing policies, allocating resources internally, and justifying budget requests. For instance, starting with estimated enrollment, economic models could then be utilized to calculate resource, space, and budget requirements for a given set of policy parameters (e.g., teaching workloads, expense dollars and office space per faculty member, and classroom space per student) and constraints (e.g., maximum and minimum class sizes). Any parameter or constraint could be altered, and it would be possible to estimate the resultant changes in terms of dollar and resource allocations (Kornfeld, 1971, pp. 35-36). When costs are allocated to specified groupings and units, economic models can cost out alternative enrollment levels and distributions, curriculum plans, policies, space parameters, and construction plans. In this way,

administrators can analyze the internal interactions among activities and programs.

In addition to generating the types of information discussed above, computerized models could be utilized to estimate future student enrollment by level and department. From this information, student credit hour workloads could be projected on a departmental basis. Moreover, the student enrollment interactions among colleges could be examined. For example, if 150 upper level undergraduate students were to be added to the College of Business Administration during a fall quarter under existing conditions, it would be possible for an economic model to show the impact that would be expected on the other colleges in the University.

These models could also be employed to estimate the number of full-time equivalent faculty required by a department to teach a given number of student credit hours based upon alternative class sizes and preferred faculty class contact hours per week. Student credit hours could be converted into expected section enrollments, and then the number of sections and the number of full-time equivalent teachers required could be estimated. By varying either preferred class size or faculty workload, it would be possible to observe the impact on full-time equivalent faculty requirements.

External Information Requirements

PPB Systems in higher education also require external

information. The necessary external information is usually not as readily available as internal information. However, since PPBS is output oriented, important information needs to be obtained from the broader society that a university and its colleges serve. This information may be grouped into two categories:

1. National
2. Market demand.

National Information

National information refers to information with multi-state scope that may be available from a myriad of federal, state, and private sources. Some of this information will be general in nature. That is, it will deal with, among other things, population trends by age group, federal and state legislation and funding trends for higher education, private foundation support for universities and colleges, and the support available from the private business sector. These types of information are of considerable importance in planning and in allocating resources. For example, the level of funding from the National Science Foundation or the U.S. Office of Education may exert a profound influence at particular universities and colleges. Some of the national information will be for purposes of inter-institutional comparisons. It may come from other institutions on an individual basis or from reports on groups of institutions (e.g., the Annual Report on the Economic Status of the

Profession published by the American Association of University Professors). Comparative studies may cover a wide range of topics. Among these might be comparisons of faculty salaries, total faculty compensation, teaching workloads, student enrollments, alumni giving patterns, library collection size, number and types of degree programs, dollar expenditures per student, faculty qualifications (e.g., number and percentage of doctorates), student aptitude and achievement test scores, space and equipment, total budgets, faculty-student ratios, faculty-staff ratios, and faculty distributions by rank and functional discipline.

Market Demand Information

Generally speaking, a university and its colleges exist to serve society in a variety of ways. With its goal and output orientation, PPBS seeks to give explicit consideration to this factor. In order to accomplish this purpose, some estimate needs to be made of the demand that society has for the outputs of a university and its colleges. These outputs can be classified as graduates (human capital), research findings, and services to the public and specialized groups.

It may not be possible to measure accurately the market demand for these outputs in dollar terms because these outputs include people, research findings which may not lend themselves to precise dollar measurement, and services whose dollar "value" is very difficult to assess with a high level of precision.

Nevertheless, some attempt at valuation is necessary.

Substitute or proxy types of information may be useful in giving some indication of the market demand for each of the three classes of higher educational outputs.

For example, information on the number and percentage of doctorates who obtain positions in specified peer group institutions (e.g., those awarding more than 200 doctorates per year) may provide an indicator of market demand at the doctoral level. At the master's and bachelor's levels, information on the number and percentage of graduates who have accepted positions by the time they graduate may be indicative of market demand. Starting salary information can also provide an indication of market demand. A relative picture can be obtained by means of comparisons with the starting salaries for graduates of other institutions.

Information on the market demand for research findings may be provided by the publications records of members of a college or university. These publications would include books (the number of volumes sold) and other scholarly works such as monographs, journal articles, papers, and reports. Furthermore, the demand for research findings may be indicated by the amount of sponsored research dollars generated and the percentage of total research funding that they represent. A higher level and a higher proportion of sponsored research funding could indicate a greater demand for the research work and resultant output of a particular institution.

Some indication of the market demand for services to the public needs to be provided. For correspondence study courses

and other types of public service course work, information on total enrollments and trends in these enrollments may provide some indication of the demand for these endeavors. Information on the number of people who attend special activities (e.g., workshops, seminars, conferences, and symposia) and the number of these activities presented may also provide some indication of market demand.

It should be noted from the above discussion that there exists an overriding problem with respect to market demand information. This problem is concerned with how to measure the market demand for the outputs of higher educational institutions. If a definitive way to accomplish these measurements can be developed, it will be possible to determine what supporting information will be required. However, no such definitive methods have yet been developed. While it is realized that market demand information is essential to effective planning and resource allocations, the specific types of information that are required cannot yet be definitively identified as they have been for students, faculty, staff personnel, facilities, and other categories.

Existing Information and PPBS

The internal and external information requirements which have been discussed in this chapter represent what is ideally needed to support a PPB System. While some of this information is currently available to support planning and the allocation

and management of resources, much of this information is not presently available and may not be for a number of years, because it takes a great deal of time and effort to develop the kind of comprehensive information system that is needed to support PPBS (Dilley, 1966).

Available Information

A great deal of internal information and some external information currently exists. For example at the University of Florida, four of the six categories of student information are available. However, information concerning the future plans and objectives of each student is limited to the academic degree toward which the student is working and the expected date of receipt.

There is substantial faculty information available. The background, qualifications, and experience of each faculty member are recorded with the exception of foreign travel and professional identification and competencies. However, professional activities information is sketchy. Teaching assignments are known and are in the process of being stored on computer tapes. Administrative assignments and memberships in learned and professional societies are also on computer tapes. The number of publications is also know. The percentage distribution of faculty effort is available in general terms. Faculty time devoted to teaching (by level), research, administration, public service, counseling, and intra-university activities (in total) is known on a

percentage basis.

Little information exists on staff personnel. The background, qualifications, and experience of each staff member is recorded on a biography sheet. However, the quality of presentation of this information varies, and it is not available in machine-usable form.

Information concerning facilities is incomplete. Space can be identified and measured. Its fiscal value and assignment (by activity) is also known. The information available on equipment includes description, department account number, building number, room number, acquisition date, contract number (if any), purchase order number, inventory number, and purchase price.

A broad variety of process information is available. For instruction, this includes all the information that is needed with the exception of special facilities required per section. The research information that is available is on sponsored research projects only. In public service, the information that is available for instruction is also available for adult education. The information needed on special activities is also recorded. However, all this public service information is manually prepared and maintained.

As far as alumni are concerned, some personal information and records of gift giving are available. Additional general alumni information on immediate graduates is also available from the Career Planning and Placement Center of the University.

The financial administration information is limited to

the classes of income and expenditure because the primary concern in the past has typically been with meeting the legal requirements of outside agencies.

A great deal of national information exists, although it is typically not so readily available as internal information. General national information can be obtained from federal, state and other publications. Other institutions of higher education, on the average, possess internal information to about the same extent as the University of Florida. Some universities may be further advanced in developing computerized models and may thus have started to generate this category of information. However, internal information typically exists only in traditional forms (e.g., objects of expenditure and faculty ranks).

By and large, market demand information is very limited. What is available (e.g., starting salary information and public service enrollment and attendence information) is incomplete and open to serious question concerning its capability to measure market demand.

Currently Unavailable Information

Some of the internal information and a great deal of the external information that is needed to support PPBS is simply not to be found. For example, information concerning student demand for courses of instruction is virtually nonexistent. There is a belief that for some courses student demand exceeds the openings that are provided in these courses, but the identification of these courses and the magnitude of this

problem are not known. Moreover, information concerning intended majors for lower division students and student plans for further study is not collected.

Faculty information is also incomplete. Information on research projects, committee assignments, counseling assignments, public service assignments, consulting, and specific identification of publications and other evidence of creative achievement is lacking. Moreover, information on the distribution of faculty effort is not available on the basis of type, area, and sponsorship of research, type of public service, and type of intra-university activity. And information concerning extra-university activities of faculty (excluding public service) is not collected systematically.

Information on staff personnel, their activities and the distribution of their effort among these activities is not available. No records of this kind are kept on support personnel.

Several types of facilities information are not available. Concerning space, this includes history and quality information as well as information on operating and maintenance expenses. The information lacking on equipment includes installation cost (if any), appraised value, life expectancy, functional or activity assignment (in most cases), operating and maintenance expenditures, and amount of downtime.

Information on non-sponsored research endeavors is not collected and processed. Public service information is

incomplete, not up-to-date, or not machine usable. Instruction information is virtually complete.

Alumni information is not systematically collected. Awards won, attainment of responsible positions, and other information are not known.

Program and activity cost information has not been developed in the past because there has previously been no need for it. Although there is now a need for such information to support program planning and budgeting and the allocation and management of resources, this information is not currently available because some of the basic elements (e.g., maintenance and operating costs of facilities) have not and are not being collected. Moreover, adequate procedures by which to allocate common indirect costs still remain to be developed.

While a great many computerized reports are produced, information derived from computerized economic (i.e., simulation) models is not currently available. There are two reasons for this. First, the models have not been developed. Second, some of the basic information to be used as input for these models is not yet machine usable.

National information for inter-institutional comparisons is not yet available on the basis of program and subprogram classifications. Thus background and comparative analyses by discipline area and program grouping are still some years distant. This also means that cost information is not available on other institutions of higher education.

Useful market demand information is virtually nonexistent. It is recognized that the development of this information is necessary for planning, allocating, and evaluating purposes. However, a lack of understanding exists regarding what can be used to measure market demand and thus what information is needed to accomplish this measurement.

Time Considerations

Students of the PPBS approach have pointed out that its thirst for information is not going to be satisfied quickly (Harper et al., 1969, pp. 623-632). On the contrary, the effort to develop a supporting information system and generate the information that is required will typically take years to accomplish. This also appears to be true with respect to the information needs of PPBS at the University of Florida. If the funds were available to hire a team of consultants, an information system could probably be set up in a year or two. However, it seems unlikely that funds will be available for this purpose. Consequently, it will probably take five years or more to develop this information system. And, with or without consultants, the generation of the information itself will take years.

CHAPTER VII

SUMMARY AND CONCLUSIONS

Introduction

This chapter presents a summary discussion of the traditional budgeting approach, the PPBS approach, and the proposed PPBS model. Several conclusions are then drawn concerning the PPBS approach, the proposed PPBS model, and its application to the College of Business Administration at the University of Florida.

Summary

In past years, the public resources which have been allocated to higher education may have been relatively abundant and easy to obtain in some states, although this has not been the case in Florida. Nevertheless, this situation is changing, and the change is having a profound impact upon public higher education in many states. Farmer suggests that public higher education in the United States will experience the "Baumol Crunch" in the 1970's (1970, p. 36). Public expenditures for education have grown at a rate of 10 percent a year since the end of the Second World War. At the same time, Gross National Product (GNP) has increased by 4 percent per year. If this situation were to continue indefinitely, expenditures for public education

would eventually equal GNP. Since such an eventuality will not take place, a day of reckoning must come sooner or later in public education. Farmer predicts that this day of reckoning will occur in the present decade.

Pressure on institutions of higher education is increasing from two directions. First, the demand for education services is increasing. Student enrollments are growing as are research activities and public service efforts. The responsibilities of a public university as a knowledge center are also increasing. Second, public resources for higher education are becoming more limited, relatively speaking, because of the growing pressure for massive public action in the spheres of environmental pollution, urban rehabilitation, and social welfare. Coupled with this is a mounting concern by public agencies, particularly at the state level, to see what is being accomplished with the public investment in higher education. Moreover, costs and physical plant needs are continuing to grow.

The result of this pressure is that public universities are faced with the problem of trying to provide more educational services on a relatively lower level of resources. These resources must, therefore, be allocated more effectively than in past years if public universities are to fulfill their mandate and accomplish their goals.

Public universities which utilize the traditional approach to budgeting request and allocate resources on the basis of the incremental formula approach. Under this

approach, anticipated student enrollment is translated by formulas into required teaching positions, other academic personnel positions, non-academic personnel positions, expense funding, and capital funding. If enrollments increase by 10 percent, this means so many new positions and so many additional dollars. The focus is on resources needed and their resultant dollar input requirements. Furthermore, the past is accepted as given and only the increment or addition to it is of direct concern.

The advantages of this approach are that it is simple, straightforward, easily learned, and conducive to decentralization. However, it possesses several weaknesses, namely an input rather than an output orientation, a lack of systematic analysis, a short-run time horizon, an incremental rather than a zero-base starting point, an emphasis on organizations and objects of expenditure, and a primary concern with control and management rather than with planning.

The PPBS approach can provide a procedure to overcome these weaknesses and thereby provide academic administrators with powerful assistance in their decision making with repsect to the allocation of scarce resources. PPBS can provide decision makers with more and better information. Furthermore, the basis of competition among organizational units can become effectiveness of contribution to enterprise goals rather than political acumen. This is made possible by relating resource allocations and expenditures to the

accomplishment of the objectives of the enterprise. Because expenditures are related to some enterprise objective, it is possible to show what happens with more or less expenditures in any given program or program category.

This approach involves program analysis which channels thinking into an ordered, logical sequence. Organizational objectives are made explicit, the means to accomplish them are delineated, analyzed, and decided upon, and effective decision making flows from this. Moreover, the focus is on objectives and outputs, the time horizon is multi-year, the concern is with the full spectrum of resources, the emphasis is on planning, and the viewpoint is multidimensional.

This is not to imply that PPBS is without limitations or that it is a panacea. On the contrary, PPBS is complex, requires enormous amounts of data, possesses difficult conceptual problems, and is very time-consuming.. For example, the two most important and at the same time difficult parts of a PPB System are the development of a program structure which accurately reflects the goals of the enterprise and the development of measures that can be used to determine the benefits and effectiveness of alternative expenditure levels. Nevertheless, PPBS can provide a great deal of assistance to university and college decision makers.

One organization within a public university that can be aided by PPBS is a college of business administration. PPBS can assist college decision makers in allocating their resources on the basis of college goals and the means to

accomplish these goals. The goals are the development of people or human capital, the generation of knowledge, and the provision of services to the community. The activities for achieving these goals include instruction, research, and special services to the public.

For a college of business administration within the setting of a public university, the following PPBS program structure is proposed:

1. Development of Administrators
2. Development of Teachers
3. Creation of Knowledge
4. Community Service
5. General Support

This structure is goal oriented. Two programs, the Development of Administrators program and the Development of Teachers program, are equivalent to the broad goal of developing human resources. The Creation of Knowledge program matches the generation of knowledge goal, and the Community Service program is the same as the goal to provide services to the public. The proposed PPBS model includes a cycle for program analysis in order to provide the approach with a firm base of analysis and objectivity. A multi-year program and financial plan format that is based upon the program structure shown above is also included in the proposed model in order to show how the tabular presentations of data that are required in PPBS can be made. The academic departments and other subordinate organizational units within a college

of business administration fit into the proposed PPBS model by means of a program structure/organization matrix which shows where each organizational unit makes contributions to the four primary programs and one support program in the program structure. Widespread participation by the faculty of the college is viewed as the most practical method by which to implement a PPB System effectively. Involvement is the key factor here. Since PPBS at the federal level has been based upon an annual budgeting cycle and many public university systems operate on a similar cycle, the planning-programming-budgeting cycle which is included in the proposed model is an annual one. This permits comprehensive updates to be made in the documentation each year.

The College of Business Administration at the University of Florida constitutes a case study for the proposed PPBS model. The goals of the College appear to be closely related to the primary programs in the proposed program structure. The College grants degrees at the bachelor's, master's, and doctoral levels and carries on activities in all four primary programs.

In order for the College to relate its goals and activities to the program structure for higher education that the State of Florida is utilizing, the crosswalking procedure must be employed. A means of doing this is shown in Figures 12 and 13. The organizational units within the College are crosswalked into the proposed program structure, and it is

crosswalked into the state program structure for higher education. In this way, the criterion that the College PPBS model possess the capability of being related to the state program structure is met. Furthermore, the fact that such a crosswalking is necessary reveals that a PPB System which is developed by the State Bureau of Planning and the Office of the Chancellor of the State University System and imposed from above may have only limited usefulness for resource allocation decision making within an individual university or a college within a university. Thus in its own self-interest, it seems that the College of Business Administration at the University of Florida should develop its own PPB System for internal decision making and resource allocations.

Figure 14 shows how a cycle for the preparation and submission of PPBS documentation within the College could function. This involves participative management on an interdisciplinary basis and at the same time allows the final decision-making authority to remain in the hands of the administrators of the College. The faculty of the College would participate in planning and analysis functions through a committee structure that is streamlined and effective.

Conclusions

There are a number of conclusions which can be drawn from this work. First, a PPB System should be developed in an orderly logical manner. The initial step should involve the design of the program structure since it is the thread

which ties all the other instruments in the PPB System together. Moreover, the program structure forms the basis for the multi-year program and financial plan. Once the program structure and the multi-year program and financial plan format have been developed, the next step is to design a planning and analysis cycle for the organization (e.g., a college of business administration). Then the data elements which are needed to support the PPB System can be determined. After these steps have been taken and the PPB System has been implemented, measures of effectiveness need to be devised in order to evaluate the programs and activities of a college.

Second, PPBS resembles other planning systems in that it needs the active support of top management in the enterprise in order to be effective and useful for administrators. If program analysis and its findings do not exert an influence on decision making and resource allocations within a college, then the PPB System may be an exercise in futility. To be effective, PPBS needs to be understood and used by decision makers. Otherwise, it cannot provide much assistance in the sphere of resource allocations. Indeed, its use would waste resources.

Third, to be a meaningful aid to the management of a college, PPBS must be viewed by internal decision makers primarily as a means to assist the internal management and decision-making requirements of the enterprise and secondarily as a means to satisfy certain budgeting and documentation requirements imposed by outside agencies. If the latter view

is predominant in a college, the PPB System may tend to be inoperative or function very poorly. Administrators and other personnel should see that there are internal benefits to be derived from PPBS in addition to thinking that some benefit may accrue to certain external groups.

Fourth, in a college of business administration the allocation of resources can be related to goals. Resources can be allocated to the many instruction, research, and public service activities which comprise and serve the primary goals of a college of business administration. In addition, the activities of the organizational units within a collegiate business school can be related to the overall goals of the college.

Fifth, there are limitations and problems in PPBS, and they should not be minimized. Some of these are conceptual. For example, within the overall goals of a college of business administration, operational objectives need to be developed to provide tactical guidance for every-day activities. Moreover, concrete objectives are necessary for the appraisal of programs.

Quantitative measures of some type are required for program evaluation. Initially, they may tend to be unrefined measures or proxy measures because this is a complex area which lacks preciseness. What is meaningful may not be known at first. The criteria for evaluation should, therefore, evolve as knowledge and expertise are gained.

This may also tend to be true for the program structure.

There is no perfect program structure. One displays inter-dependencies and trade-offs that another keeps hidden. Furthermore, circumstances change over time so that the program structure which is satisfactory today may be unsatisfactory tomorrow. Thus no matter how excellent the program structure is, it may be subject to change. In any case, it should retain the capability to permit intra-college comparisons.

Other limitations and problems in PPBS are implementational in nature. For instance, PPBS may bring with it organizational change. Power and status relationships may be altered. Old sources of authority may decline, and new sources may arise. This factor of change should be taken into account. Otherwise, resistance to the change may be engendered.

One means by which to diminish this resistance may be participation. If all administrators are involved in the development and implementation of PPBS, there may be less tendency for resistance. The sociological factor of belonging and participating in the planned change can help to lessen the inclination to oppose the change.

To fully operate a PPB System requires a comprehensive information system. PPBS requires enormous amounts of information. In some respects, its appetite for information may be insatiable. When a PPB System is installed, the existing information system is typically inadequate to meet the new demands being placed upon it. At the very least this may mean an expansion of the existing information system.

However, this may entail the design and installation of a new information system to support the PPBS effort.

Naturally, a great deal of time is typically needed to implement a PPB System and its supporting information system. In the federal government, it has been five years since the civilian agencies of the executive branch began to develop and implement PPBS. Based upon this experience, it would appear to be foolhardy to anticipate that PPBS can be implemented overnight in a college of business administration.

There are also operational limitations and problems in PPBS. One of the crucial parts of a PPB System is program analysis. To carry out this analysis so that it can effectively assist in decision making and resource allocation, an analytical capability is needed within a college. This can be developed from the faculty of a college, but it requires a formal planning and analysis structure and timetable.

Furthermore, this planning and analysis cycle should function within the constraint of an overall PPB operating cycle for a college. In the case of a college within a public university, this typically means an annual planning-programming-budgeting cycle which is tied to the annual budgeting cycle that exists in many state governments.

Also, like other budgeting systems, PPBS operationally may be subject to political considerations. That is, PPBS does not function in a political vacuum but rather is subject to the give and take of the political realm. This is because

a budget is an expression of policy. Consequently, budgeting involves more than just economy and efficiency and more than just quantifiable economic benefits. Consider, for instance, the situation in which a major public university finds it desirable to establish an academic department for Swahili. Criteria of cost, benefit, and effectiveness may not justify the establishment of the department. However, the desire to offer a full spectrum of foreign languages in a major public university may represent a political criterion which justifies the promotion of this endeavor.

Sixth, the proposed PPBS model may be applicable to colleges of business administration in general and to the College of Business Administration at the University of Florida in particular. The model is oriented to the goals and functions of a college of business administration and relates programs and activities to college goals. As a result, the model seems to present a useful means to view what a college of business administration is doing and to allocate resources accordingly.

The PPBS committee structure that is proposed for the College of Business Administration at the University of Florida can provide a vehicle for planning and analysis. Within this structure, the planners and the implementers would be one and the same. There would be no separating of responsibility for planning and for the implementation of the plans. Moreover, the proposed PPBS committee structure would formalize the machinery to operate the PPB System,

carry out program analyses, and prepare the budget requests and other documentation that are inherent in PPBS.

A potential advantage of the proposed PPBS committee structure is that it may tend to reduce subordinate unit conflicts and promote a college viewpoint. This is an important consideration. Normally, PPBS cuts across organizational lines. This may engender competition among subordinate organizational units as each strives to make the greatest contribution to college goals. This competition may generate dynamism in the organization and help to make it vigorous and strong. At the same time, conflict may be engendered. The proposed PPBS committee structure may help to channel this conflict into constructive channels.

Furthermore, the proposed PPBS committee structure may help to diminish the internal resistance to planned change which results from PPBS. This structure can bring about the involvement and participation that are needed to smooth the path to change.

Seventh, the proposed PPBS model appears to be superior to the Florida PPB System. In keeping with the focus of PPBS, the proposed model is goal oriented. It recognizes the interdependency of the three main processes in higher education and provides for the explicit consideration of their joint costs. Finally, the proposed PPBS model provides for the measurement and evaluation not only of input and output but also of effectiveness and benefit in terms of the goals and objectives of higher education and the programs which serve them.

If the information was available, it would be possible to compare the traditional budgeting approach, the Florida PPB System, and the proposed PPBS model in order to determine which would lead to better allocations of resources. However, since this information is not currently available, it is not yet possible to make a conclusive determination of this type.

Each year three or four major issues should be selected for intensive program analysis. The issues to be considered could originate in the academic departments or the other subordinate units within the College or could be generated by the Dean. For example, these issues might deal with the following:

1. The role of the College's research efforts with respect to the business community and society as a whole.
2. Projections of enrollment by level for the College and for the academic departments.
3. A comparison of the College's faculty salaries by functional discipline and academic rank with other colleges of business administration at selected state-supported universities in the United States.
4. The cost of education by functional discipline in the College.

This dissertation has involved an attempt to extend and improve the PPBS approach to academic planning and

budgeting. The degree of success which this approach will enjoy in the public university environment is not yet known. The result could be a costly "noble experiment." However, PPBS has been useful at the federal level. Therefore, there seems to be no reason why, with the wealth of professional talent that is available in institutions of higher learning, PPBS cannot provide assistance to university and college planning and budgeting.

Recommendations for Further Research.

There are several areas of PPBS in which further research is needed, particularly with respect to higher education. For example, little has been done in the area of the organizational impact of PPBS. It is hypothesized that PPBS allows an organization to become more centralized, but no research has been done to prove or disprove the hypothesis. The role of research in an institution of higher learning, particularly in times of financial stringency, is in need of thorough examination. A great deal of research needs to be done in the area of the cost of academic programs, especially when joint costs are involved. New tools and techniques for their measurement need to be developed. Inquiry into the measurement of output and the evaluation of effectiveness and benefit in higher education has barely touched the surface of the problem. Not only do new techniques for measurement and evaluation need to be developed, but also an information system to support the use of these techniques must be developed. This level of information

technology is beyond the capability of most existing information gathering systems. Finally, one of the social goals of the United States is a more equitable distribution of income. Progressive income taxes serve this goal. However, little research has been done concerning the income redistribution effects of higher education. There is a belief that higher education has regressive effects, but this has not been substantiated, especially with reference to particular classes of universities and colleges. Some very meaningful and urgently needed research could be done in this area, particularly with respect to the University of Florida and Florida State University in comparison with the other universities in the Florida State University System.

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BIOGRAPHICAL SKETCH

George Endicott Shagory was born June 3, 1936, in Boston, Massachusetts. He was graduated from the Roxbury Latin School in June, 1955, and three months later he enter the Massachusetts Institute of Technology. In 1957, he transferred to the College of Business Administration at Boston University. He was graduated with a Bachelor of Science degree in Management in August, 1960. Following graduation, he entered the graduate division of the Wharton School of Finance and Commerce at the University of Pennsylvania. In May, 1962, he received a Master of Business Administration degree in Foreign Commerce. From February, 1962, until December, 1965, he served in the United States Navy as an Intelligence Officer. Upon release from active duty, he attended the Graduate Business School at Northeastern University as a special student. At the same time, he went to work as an Engineering Administrator with Raytheon Company. In September, 1967, he entered the Ph.D. program of the College of Business Administration at the University of Florida. He served as a Graduate Research Assistant in the Bureau of Economic and Business Research within the College from 1967 until May, 1969, when he joined the Office of the Provost of the Institute of Food and Agricultural Sciences at the University as a Research

Associate in planning and budgeting. Five months later, he assumed his current position as a Management Analyst in the Office of the Vice President for Academic Affairs at the University of Florida.

George Endicott Shagory is married to the former Carol Ryer and is the father of two sons. He is a member of the Academy of Management, the American Academy of Political and Social Science, the American Economic Association, and the American Society for Public Administration.

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

William V. Wilmot, Jr., Chairman
Professor of Management

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John H. James
Associate Professor of Management

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Ralph H. Blodgett
Professor of Economics

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This dissertation was submitted to the Department of Management and Business Law in the College of Business Administration and to the Graduate Council, and was accepted as partial fulfillment of the requirements for the degree of Doctor of Philosophy.

August, 1971

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Dean,
Graduate School